

Ohio University Bulletin

GRADUATE COLLEGE 1973-74 • PART I GENERAL INFORMATION

FEBRUARY, 1973

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ACADEMIC CALENDAR FOR 1973-74

The student should obtain from the Graduate College Office a detailed list of deadlines for the quarter in which he expects to receive the graduate degree.

FALL QUARTER, 1973

Sept. 25, Tues.	Registration
Sept. 26, Wed.	Classes begin
Oct. 8, Mon.	Last day for filing application and paying fee for conferral of degree on December 15
Nov. 22, Thurs.	Thanksgiving Day holiday
Nov. 26, Mon.	Classes resume with first scheduled class
Dec. 15, Sat.	Quarter closing date

WINTER QUARTER, 1974

Jan. 4, Fri.	Registration
Jan. 7, Mon.	Classes begin
Jan. 15, Tues.	Last day for filing application and paying fee for conferral of degree on March 16
Mar. 16, Sat.	Quarter closing date

SPRING QUARTER, 1973

Mar. 25, Mon.	Registration
Mar. 26, Tues.	Classes begin
Apr. 4, Thurs.	Last day for filing application and paying fee for conferral of degree on June 8
May 27, Mon.	Memorial Day holiday
June 8, Sat.	Quarter closing date; Annual Commencement

SUMMER QUARTER, 1974

(First Term)

June 17, Mon.	Registration
June 18, Tues.	Classes begin
June 24, Mon.	Last day for graduate students to file application and pay fee for conferral of degree on August 24
July 4, Thurs.	Independence Day holiday
July 20, Sat.	Term closing date

(Second Term)

July 22, Mon.	Registration; classes begin
Aug. 24, Sat.	Quarter closing date

A graduate student must be registered in any quarter in which he is receiving any service from the University or using its facilities. A master's student must be registered for at least one hour and a doctoral student for at least two hours.

GENERAL INFORMATION

- The general policies, regulations, calendar and fees contained in this bulletin are necessarily subject to change without notice at the discretion of the University.
- A candidate for a degree must meet those requirements set forth in the graduate bulletin at the time of his initial registration in the Graduate College. Should he elect to follow requirements of a later bulletin, he must follow them in entirety.
- The student should assume responsibility for knowing Graduate College and departmental regulations and for complying with procedures applicable to him.
- Part II of the graduate bulletin contains course descriptions. It is available from the Graduate College upon written or personal request.

PROFILE OF OHIO UNIVERSITY

Established in 1804, Ohio University is the oldest institution of higher education in the Northwest Territory. The enrollment on the main campus in Athens is 17,500, while six regional campuses and academic centers in southern Ohio enroll an additional 4,700. The full-time faculty numbers 800 and there are 75 part-time faculty and about 850 graduate, teaching and research assistants.

The Graduate College offers master's degree work in 46 areas of study and doctoral level work in 19 areas. The present enrollment of the Graduate College is nearly 2,000, most of whom are full-time students.

The University is accredited by the North Central Association of Colleges and Secondary Schools

and by the recognized professional accrediting associations identified with its major academic divisions. It holds membership in the leading state and national educational and professional associations.

The University's academic calendar consists of four quarters of from ten to 12 weeks' duration, the summer quarter having two five-week terms. Many students find it advantageous to register for all four quarters, thus having an opportunity for uninterrupted study and research. A graduate appointee (teaching, research or graduate assistant) has the added benefit of study with only an incidental fee of \$40 charged during the summer quarters immediately preceding and following the period of his regular appointment. Some graduate appointments and scholarships are available during the summer quarter as well as in the regular academic year.

FACILITIES AND SERVICES

Alden Library

The Alden Library, occupied in early 1969, now has a capacity of 1,200,000 volumes and seating for 4,000 as a result of a second-phase of construction, completed in mid-1972. The central facility serves the entire student body and faculty with special services available throughout the seven-story building.

The main campus entrance is on the fourth floor, where the public catalog and main circulation desk are housed. The reference collection, current periodicals, interlibrary loan and technical processing staff are also located on this central floor, as well as a collection of national and trade bibliographies. Government documents, rare books and archives and the microfilm collection occupy the fifth floor, while the top two levels contain the research collection, graduate lockers and faculty studies.

The student lounge, reserve book room, Associated Studies Division and a selected basic collection are housed on the third floor. On the second floor are the map, art and children's libraries.

The main collection consists of over 666,295 volumes, of which 145,000 are government documents arranged by Superintendent of Documents classification. In addition, there are 22,550 pamphlets in vertical files; 83,000 maps, 49,000 art slides and over 5,600 current periodical titles. There are extensive holdings in microform format: 31,978 reels of microfilm and approximately 343,544 units of microcard, microprint and microfiche were reported as of June, 1972. (By the rules of national reporting, microform units are *not* converted into book equivalents.)

Recent membership in the Center for Research Libraries, located in Chicago, has made that multi-million-volume collection readily available on loan to researchers. Expedited interlibrary loans have been made possible throughout Ohio by the recently organized Reference and Interlibrary Loan Service at The Ohio State University. Microform holdings have increased greatly in the last two years and are an extremely rich, but often overlooked, resource base. Graduate students are particularly exhorted to visit the microform area to explore the holdings, many of which are *not* listed in the public catalog.

The Special Collections Division administers the valuable J. W. Morgan Collection of books in the history of science, especially chemistry, the rare book collection and the archives. Small collections on a less formal basis are administered in several other buildings on campus in connection with the School of Music and several of the science departments.

Graduate Student Council

The Graduate Student Council is composed of student representatives from the graduate academic departments. The purpose of the council is to represent the graduate student body in the University community and to promote the general welfare of graduate students at Ohio University.

Health Service

The University Health Service facilities, located in the Hudson Health Center, include an outpatient clinic; an inpatient or hospital section, and complete ancillary services, including x-ray, clinical laboratory, physical therapy and pharmacy. A dental clinic and a mental health clinic are also included in the University Health Service.

The health service staff includes full-time physicians, a dentist, a pharmacist, registered nurses and registered laboratory, x-ray and other allied personnel.

A continuous health record is maintained on each student, beginning with the report of medical history submitted by each entering student. This report (and a tuberculosis skin test accomplished by the University Health Service) is required for final admission to the University or for reenrollment after an absence of two or more years.

MAJOR MEDICAL INSURANCE PLAN. A major medical insurance plan designed to supplement the care provided by the University Health Service is mandatory for every student registered for more than six hours unless the student submits evidence that he is covered by a comparable private insurance plan.

The plan provides protection against major medical and surgical expenses regardless of where the student may be. In addition to the medical and surgical benefits payable under the terms of the group plan contract, an accidental death payment is part of the policy.

To assist married students, a major medical-surgical expense protection insurance plan for dependents is available through the University comprehensive group medical insurance policy.

Information Center

A complete information service for students and campus personnel, in the lobby of Baker Center, provides answers to questions regarding University services, programs and facilities.

The Information Center has Ohio University brochures, the campus directory, academic and social calendars and listings of University committees and departmental chairmen. It receives

applications for student participation on University committees and researches questions when information is not immediately available.

For University personnel and student telephone numbers, call the University switchboard by dialing "8" from any University phone with a 594 prefix, or dial 594-5511 when calling from outside the University.

Ombudsman of the University

At the suggestion of the President's Workshop in the summer of 1970, an Ombudsman of the University was appointed. The ombudsman's duties include the maintenance of simple, orderly procedures for receiving requests, complaints and grievances, both from students and from other members of the University community; working, where a pattern of grievances develops, for a change in regulations, procedures or personnel to prevent problems; assisting individuals in accomplishing the expeditious settlement of their problems; intervening in the bureaucratic process on behalf of individuals when said process unnecessarily or unfairly impinges upon them; using his broad investigatory powers and direct and ready access to all University officials of instruction and administration, and reporting of valid complaints directly to the President when no remedy has been found elsewhere in the University.

The office of the Ombudsman of the University is located at 48 University Terrace, telephone 594-4721.

Placement and Internship Service

The Placement and Internship Service provides information concerning teaching and administrative positions at the elementary, secondary, college and university levels. Teaching positions at the elementary and secondary levels include professional education, home economics, counselor education, industrial arts and physical education. Information is available on vacancies at the PhD and master's degree levels in all disciplines from most states. This information includes student personnel services and college/university administration.

The Placement Service also assists students and alumni seeking positions in business, industry and government.

Each division represented within the Placement Office (college teaching and administration, secondary and elementary teaching, liberal arts and fine arts, business and communication, and engineering and science) has a director to assist students in career planning as well as to offer advice and information on employment opportunities.

The Placement Office has a well-stocked graduate catalog library as a part of its service.

Psychological Services

Professional counseling services are provided for undergraduate and graduate students *on an individual and/or group basis*. Confidential counseling is available for all types of personal adjustment problems, including those of an emotional, marital or social nature, *general dissatisfaction with living, or not living up to one's potential in various endeavors*. Students who are having academic difficulties may receive help in understanding the causes of their difficulties. Students who are uncertain about their educational and career objectives can obtain help in appraising their aptitudes, interests, performances and personal characteristics so that they may make more appropriate and satisfying decisions. An extensive file of information is available about occupations and career areas, including information about the particular duties, present and future opportunities and income related to a wide variety of occupations.

Students who wish to obtain confidential consultations about academic, career and personal adjustment concerns may contact the receptionist at McKee House, 44 University Terrace, telephone 594-6081.

Study Abroad Programs

The Office of International Studies offers study abroad programs for graduate credit in Greece (summer), Italy (spring) and Mexico (summer). These programs are administered by the Office of Study Abroad Programs and International Summer Employment, McGuffey Hall 100, telephone, 594-7986.

LIVING ARRANGEMENTS

Included in Ohio University's new residence hall complex for single students on the South Green are three residence halls designed especially for coeducational, graduate student living. Each graduate building accommodates a maximum of 96 students in single occupancy rooms and provides seminar rooms which may be utilized to accomplish individual and group study projects.

Each bedroom is equipped with a studio-style bed, desk-dresser combination and desk chair. Seminar areas and hallways are all carpeted. Each building has an elevator and separate recreational space. Attractive food service is provided in close proximity to the graduate buildings and private dining rooms are available for special groups. No cooking facilities are available in the student rooms.

While graduate students are not required to live in University residence halls, many do take advantage of the facilities available. The room

and board rate for the graduate student living centers on the new South Green is currently \$448 per quarter (rates are subject to change as economic conditions warrant). All University residence hall contracts are for the entire academic year (fall, winter and spring quarters), unless the student withdraws from school or graduates.

For those students not interested in University housing, the Housing Office maintains current lists of rooms for rent and apartments for lease in the City of Athens. Since these listings change so frequently, however, no attempt is made to reproduce them in any quantity. Students interested in housing within the city should visit the Housing Office to check the current files.

Students living in off-campus housing may arrange to eat in University dining halls by signing an outside-boarder contract. These arrangements are made through the Office of the Director of Housing and the contract is effective for the full quarter. The cost of board in the University dining halls is \$180 a quarter (rate subject to change) for 21 meals per week. Meals are served throughout the academic year except during Thanksgiving, Christmas and spring recesses.

Married Student Apartments

Ohio University has two housing complexes which are rented primarily to married students. The Wolfe Street Apartments are located on the southeast corner of the main campus, near the graduate science building. The Mill Street Apartments are six blocks northeast of the main campus, adjacent to the intramural sports fields.

Linens, bedding, dishes, lamps and rugs are not furnished in the Wolfe Street or Mill Street apartments. Air conditioners are permitted provided guidelines established by the University are followed. Furniture may be arranged to suit the occupants, but University furnishings may not be stored or removed from the apartments.

MILL STREET APARTMENTS. Each apartment in the Mill Street complex, which consists of 13 modern brick buildings, is furnished with an electric range, refrigerator, garbage disposal and draperies. There are three coin-operated laundries conveniently located within the complex.

All utilities are included in the monthly rent, and a telephone outlet and an outlet for the television cable are provided in each unit. Either or both of these services may be obtained by contacting the appropriate company, General Telephone Company of Ohio or Continental Cablevision Company. The cost of these two optional services is not included in the rent.

One Bedroom. There are 66 one-bedroom apartments housed in a six-story building which

has elevator service to accommodate both passengers and furnishings. There are both furnished and unfurnished apartments available. The current rental rates, (subject to change as economic conditions warrant) are: furnished \$145 and unfurnished \$130.

Two Bedroom. Each of the 127 apartments, housed in 12 smaller buildings, has direct access to the outdoors. The buildings are grouped around interior courts with children's play areas. There are ample parking facilities for tenants and an area for guest parking in the rear lot. The current rental rate for the furnished two-bedroom apartment is \$167; unfurnished \$151 (subject to change as economic conditions warrant).

WOLFE STREET APARTMENTS. All of the Wolfe Street Apartments, located in two two-story brick buildings, are furnished except for draperies. All utilities are included in the rent, except for the telephone and TV cable. Laundry rooms with coin-operated machines are located in the complex.

There are four types of apartments at Wolfe Street, as follows:

Efficiency (4)	\$ 97
One Bedroom (38)	\$113
Bedroom-Nursery (8)	\$124
Two Bedroom (2)	\$140

(Rental rates are subject to change as economic conditions warrant.)

CULTURAL EVENTS AND ENTERTAINMENT

University students have the opportunity to attend theatrical productions of touring companies throughout the year as well as plays presented by the School of Theater. The Ohio Valley Summer Theater, a joint community-University organization, stages a series of outstanding productions each summer. The School of Music and the School of Theater cooperate in producing musicals, and the former school offers many recitals and concerts by faculty, students and music organizations.

The Artist Series and the Chamber Music Series sponsor internationally known instrumentalists and vocalists, symphony orchestras, chamber music groups, opera and ballet companies. The University invites guest artists and distinguished persons to lecture or appear in recital, and to talk informally with students and faculty.

Art exhibitions by the School of Art faculty and students are displayed in The Gallery in Seigfred Hall. In addition, special shows and exhibits from other galleries are presented.

Pop concerts by contemporary entertainers are sponsored by student organizations on campus. First-run movies, foreign films, experimental movies and classic films are shown throughout the year.

The Edwin and Ruth Kennedy Lecture Series brings many distinguished lecturers to the campus, while speakers on a variety of topics are sponsored by campus organizations.

The University's radio stations, WOUB-AM and FM, and the educational television station, WOUB-TV, provide entertaining and educational programming for the University and the Athens community.

RECREATION

Recreational facilities include gymnasiums, an indoor ice skating rink, tennis courts, an indoor swimming pool, athletic fields and areas for activities ranging from softball to horseshoe pitching.

Ohio University is a member of the Mid-American Conference and participates in inter-collegiate competition in football, basketball, baseball, tennis, swimming, hockey, golf, track, soccer and other field events.

The Baker University Center provides facilities, services and programming for students, faculty, staff, visitors and members of the Ohio University-Athens community. The building contains lounges, a large ballroom, dining rooms, snack bar, television and conference rooms and areas for bowling, billiards and cards. Any type of food catering service can be provided. The center operates the all-campus Information Center and also provides the staff and facilities for the Rumor Control Center when it is needed. The office of the director of the center is open to provide assistance and guidance to individuals and groups desiring to use the center.

Four of the state's most scenic areas are located near Athens and are used as weekend retreats by students and faculty. Included are Dow Lake, located just east of Athens in a 200-acre state park and used by the University for educational and research projects; Lake Hope, located in Zaleski State Forest about 25 miles from Athens; the caves and gorges of the Hocking Park area and Burr Oak Lake, Glouster.

ADMISSION, FEES AND REGULATIONS

ADMISSION

The prospective student submits to the Graduate College application forms, a \$10 nonrefundable application fee, official transcripts as indicated, official test scores as required by his department and any other pertinent information in support of his application. He provides for letters of recommendation (if required) to be sent to the department to which he is applying.

Copies of the above materials are forwarded by the Graduate College to the department of the student's choice, and the departmental graduate committee recommends admission or denial to the Graduate College.

The Graduate College considers the departmental recommendation and informs the student by letter that he is being granted admission (with any relative conditions) or that he is being denied admission.

Approval for admission to graduate study will be based on possession of a bachelor's degree from an accredited college or university and such factors as the following: undergraduate scholastic point-hour ratio (both overall and in the proposed graduate major), selection of courses, pattern of grades, recommendations, test scores, work experience and other matters which are relevant. Each department will give appropriate weight to the factors pertinent to its academic field.

Supporting evidence of the student's ability in the form of the Graduate Record Examination, Admission Test for Graduate Study in Business, Miller Analogies Test or other college ability tests may be required.* The student should consult with his specific department about necessary tests.

Foreign student applicants whose native language is not English must submit evidence of proficiency in the English language adequate to use it as the medium of instruction. The Graduate

College will accept the English Test of the University of Michigan English Language Institute, Ann Arbor, Michigan, U.S.A., or the Test of English as a Foreign Language (TOEFL) as an evaluation of proficiency in English.

A student with a bachelor's degree from an unaccredited institution usually will be required to supplement his undergraduate record with a satisfactory score on an acceptable standard college ability test.* (See page 9 Item 2 under Degree.)

Application for admission consists of the presentation of application blanks filled in by the applicant and an official transcript from each school attended (*sent directly to the Graduate College*) Subsequent to notice of admission the applicant will receive a vaccination blank to be certified by a physician and a medical history blank to be filled in by the applicant and completed by a physician. Both forms should be sent to the Ohio University Health Center.

Applications for admission, together with the \$10 application fee (a check or money order payable to Ohio University), and supporting credentials, including official transcripts of all academic

**Those who have taken any of these tests are urged to have their scores reported to the Graduate College, Ohio University, Athens, Ohio 45701.*

Further information about the Graduate Record Examination (given in January, February, April, June, October and December) or the Admission Test for Graduate Study in Business (given in February, April, June, August and November) may be obtained by writing to the Educational Testing Service, Box 955, Princeton, N.J. 08540. Applicants in the West Coast region should write to the E.T.S., Box 1502, Berkeley, Calif. 94701. Students on the Ohio University campus may obtain test application forms from the Graduate College.

Information on the Miller Analogies Test may be obtained from The Psychological Corporation, 304 E. 45th St., New York, N.Y. 10017. This test may be taken at Ohio University through the Center for Psychological Services, McKee House, 44 University Terrace.

work, should be received at least three weeks before registration for the quarter or summer term in which the student wishes to begin graduate study.

All documents received by the University in connection with applications for admission become the property of Ohio University. Under no circumstances will they be returned to the applicant or forwarded to any agency or other college or university. Documents of students who are admitted to the Graduate College but who fail to enroll for the quarter for which they are admitted are destroyed. Materials will be held, however, for a maximum of one year if the student notifies the Graduate College in writing that he is postponing his enrollment.

All correspondence pertaining to the admission of a student to the Graduate College should be addressed to the *Dean of the Graduate College, Wilson Hall, Ohio University, Athens, Ohio 45701.*

SPECIAL NOTE FOR STUDENTS IN EDUCATION: Any student who has earned a master's degree in education at Ohio University and who plans to take additional work in education must reapply through the Graduate College office for admission.

Graduate Study as a Senior

A student who is within nine hours of completing all requirements for the bachelor's degree at Ohio University may take courses carrying graduate credit, provided he otherwise meets the requirements for admission and secures the written recommendation of the dean of his college, the graduate chairman of his major department and the *approval of the dean of the Graduate College.* This privilege also may be extended to a well-qualified senior of another university who has nine or fewer hours to complete for his bachelor's degree. *Request for this privilege should be made in advance of registration through the Graduate College Office.*

Early Admission to the Graduate College

With the written endorsement of the chairman of his major department and the *approval of the dean of the Graduate College*, a superior student who will have completed all his undergraduate requirements except the total hour requirement (as of the time of proposed entry into the Graduate College) may be admitted to a degree program with regular status and may enroll in graduate courses for graduate credit. The courses may be used to satisfy both undergraduate and graduate degree requirements.

A student seeking early admission to the Graduate College should start the application process at least three weeks prior to the beginning of the quarter in which he wishes to enroll.

CLASSIFICATION OF GRADUATE STUDENTS

Ohio University has three graduate student categories: *degree, nondegree* and *transient.*

Degree

1. Those students approved by the major department and the dean of the Graduate College for unqualified admission to a graduate degree program are granted *regular* (or unconditional) *status.*

2. Those students who have some deficiency in entrance requirements may be approved by the department and the dean of the Graduate College for admission with *conditional status.* Students in this category may achieve regular status after the satisfactory completion of a prescribed program of study to remove any academic deficiencies.

Undergraduate courses which are required of a graduate student as further preparation for admission to the graduate program itself may be taken either for credit or for audit and will not count in determining the student's grade point average for his degree program, although they may be used by the department in evaluating the student's capability for graduate work. The department will specify whether the student should take preparatory courses for audit or for credit.

Nondegree

A student who wishes to take a graduate course or to receive graduate credit for a workshop or an institute, with no intention of working toward a graduate degree at Ohio University, must apply for admission to the Graduate College in the regular manner but as a *nondegree* student. Approval for such admission does not constitute admission to the Graduate College to a degree program, and the credit earned cannot normally be applied toward a graduate degree at Ohio University. In exceptional cases the appropriate academic departments will determine which courses (if any) taken while in a nondegree status may be applied subsequently toward degree requirements.

No more than 18 hours of academic work may be taken by a nondegree student. If a nondegree student does not register for a period of one year, he must file a new admission application.

Transient

A graduate student currently working toward a degree at another university who wishes to earn graduate credit at Ohio University to be transferred to the other university may be admitted as a *transient* student by submitting an application and presenting an official statement of good standing from the *dean of the graduate school* in which he is enrolled. Such a student must request permission each quarter to register at Ohio University as a transient student.

All students, regardless of the type of admission, will be on a provisional status until the final transcript requirement has been satisfied.

REGISTRATION FEES*

Payment of all assessed fees at the times designated is prerequisite to official enrollment. Checks and money orders should be made payable to Ohio University in the exact amount of the fees. Postdated checks are not acceptable. Checks not paid on presentation to the bank will automatically cancel any receipts given and result in assessment of penalties. *It is important that the student retain all fee receipts.*

Ohio University reserves the right to make, without prior notice, any fee adjustments that may become necessary.

Quarter Fees

The *comprehensive fee** covers an instructional fee, a general fee and a tuition surcharge for non-residents.

Hours	Resident of Ohio	Non- Resident
1	\$ 34	\$ 79
2	68	158
3	102	237
4	136	316
5	170	395
6	204	474
7	238	553
8	272	632
9 to 16	310	710
For each hour in excess of 16 add .	34	79
to the comprehensive fee of	310	710
<i>Auditors</i> pay fees in full as above		

*All fees are subject to change.

Summer Quarter Fees

See the summer quarter bulletin and schedule of classes for complete details.

Miscellaneous Fees

Admission application filing fee (nonreturnable)	\$10
Late registration	20
Change of course	2
Duplicate official forms, fee receipts, bill state- ment, grade report, etc.	2
Graduation—	
Application for master's degree	20
Application for PhD degree	50
Reapplication for master's or PhD degree ...	5
Transcript of record	1

Refund of Fees

Withdrawal from a course by change order within the approved period specified in the calendar entitles a student to an 80 percent refund if it results in a fee change.

Official withdrawal from the University during a quarter (or term) entitles the student to a refund of 80 percent of the comprehensive fee during the period specified in the calendar. There is no refund after this date.

Special pro rata refund regulations apply to students inducted into military service.

Refunds are issued 30 days after date of official withdrawal.

GENERAL REGULATIONS

Registration

Details concerning the registration procedure are given in the schedule of classes which may be obtained at the Office of Registration before each registration and by specific instructions to graduate students released by the Graduate College.

A former graduate student who wishes to re-enroll after an absence of one quarter (except summer) must request a reenrollment form one month in advance of the quarter in which he intends to register.

A graduate student who has attended a regional campus and who desires to enroll at the Athens campus, or vice versa, must fill out a relocation form one month in advance of registration. These forms are available from administrative offices at each of the campuses.

A student who resumes his study at Ohio University after an absence of two or more years will be required to submit a new medical history.

Late Registration and Late Payment Policy

Unless in the judgment of the registrar a student's registration has been delayed due to the convenience of the University, a \$20 late registration fee will be assessed all students beginning with the first Monday after the opening day of classes of each quarter. No student registration forms will be accepted after the tenth calendar day of the quarter following the opening day of classes.

A late payment fee would normally not be applicable since payment is a prerequisite to registration. However, in addition to other service charges, the Bursar's Office will assess a \$20 late payment fee on all checks returned by a bank after the official payment deadline.

Auditing

Courses that a student wishes to audit must be marked *audit* on registration forms. The fee for auditing is the same as for credit. Changes from audit to credit or from credit to audit are made by change order during the period when changes are permitted. With the permission of the instructor, a full-time student has the privilege of visiting classes in which he is not registered.

Change Orders

A student who finds it necessary to add a course, withdraw from a course or correct his registration, requests a change order in the office of the Graduate College. The order does not go into effect until it has been approved by the dean of the Graduate College and submitted to the Office of Registration. It must be in the Office of Registration within 24 hours after it is initiated.

Withdrawal from the University

Application for withdrawal is made on a withdrawal form obtained from the Graduate College Office. When the request for withdrawal has been approved by the dean of the Graduate College, the order is referred to the Office of Student Records which grants an official withdrawal after it has been determined that all obligations to the University have been met. A refund of registration fees is made according to regulations. See Refund of Fees page 10.

A student who withdraws after the 21st day of any quarter will establish a *W* grade in each course.

A student who fails to complete the work of a course and does not complete an authorized withdrawal shall have an *F* reported for that course.

Special provisions in respect to credits and refunds apply to students who withdraw because of induction into military service.

Change of Address

Forms for reporting a change of home or Athens address are available in the Office of Student Records. A student is responsible for any University office communication sent to him at the last address reported to the Office of Student Records.

Motor Vehicles

University regulations require that all motor vehicles operated by students in Athens, including student-owned automobiles, automobiles belonging to parents or relatives, motorcycles and scooters, be registered with the University. This registration includes permanent town residents, married

students and commuters. The registration, completed during registration week, will be valid for the entire academic year.

Upon registration, each student will be given a sticker which must be attached to the left-hand side of the rear bumper.

If a car is brought to the campus after registration week it must be registered within 24 hours at the office of the director of security. Failure to register a motor vehicle will result in a fine, and the student may be denied his driving privileges.

Two-wheeled motor vehicles are not permitted on University property.

Ohio Residency for Fee Assessment

In determining whether or not an enrolled student is an Ohio resident for purposes of the appropriation subsidy, each state-assisted institution shall make a determination of fact in accordance with these standards:

1. A dependent student shall be considered to be a resident of Ohio if his or her parent or legal guardian has resided in Ohio for 12 consecutive months or more immediately preceding enrollment, or if his or her parent resides in Ohio at the time of enrollment and at least one parent is gainfully employed on a full-time basis in Ohio.

2. A student shall be considered to be an Ohio resident regardless of the place of residence of the parent or legal guardian at the time of enrollment if the student resides in Ohio and has resided in the state for 12 consecutive months or more immediately preceding enrollment and if the student presents satisfactory evidence that the parent or legal guardian has not contributed to his or her support during the preceding 12 months and does not claim him or her as a dependent for federal government income tax purposes.

3. A student shall be considered to be an Ohio resident regardless of the place of residence of the parent or legal guardian at the time of enrollment if the student is gainfully employed on a full-time basis and resides in Ohio, and is pursuing a part-time program of instruction and if there is reason to believe that the student did not enter Ohio primarily for the purpose of enrolling in an Ohio institution of higher education.

4. The residency status of a married student shall be determined without regard to the residency status of the student's spouse.

5. A person in military service or the dependent children of a person in military service shall be considered to be residents of Ohio during the period when that person is on active duty status in Ohio and has established a residence in Ohio.

6. A person who enters upon active duty status in the military service as a resident of Ohio and the dependent children of such a person shall be

considered to be residents of Ohio if they provide proof of continued domicile in Ohio and of continued eligibility to vote in Ohio.

7. A student classified as a resident of Ohio whose parent or legal guardian moves his residence to another state shall be considered to be a resident of Ohio until completion of the degree program in which he is currently enrolled.

8. A student who at the time of enrollment enters the State of Ohio from another state for the primary purpose of enrolling in an Ohio institution of higher education shall be considered to be a nonresident student, and shall continue to be so considered during the period of continuous enrollment as a full-time student in an Ohio institution of higher education.

9. An alien student admitted to the United States on a student visa or other temporary visa shall be considered to be a nonresident student. An alien holding an immigrant visa may establish Ohio residency in the same manner as a citizen of the United States.

10. A student classified as a nonresident student may appeal the classification to an appropriate officer or administrative panel duly constituted by an institution of higher education and may be reclassified as a resident of Ohio if:

- a. the dependent student presents conclusive evidence that his or her parent or legal guardian has established a residence in Ohio and at least one parent is gainfully employed on a full-time basis in Ohio;
- b. the student, in addition to demonstrating financial independence from parents, presents clear and convincing evidence of exceptional circumstances justifying a change in classification because of having established a separate residence in Ohio for 12 months or more preceding the request for reclassification and because of having made a definite commitment to enter into gainful employment in Ohio upon completion of a degree program within the ensuing 12 months.

ACADEMIC REGULATIONS

Assignment of Adviser

A student who qualifies for admission to the Graduate College confers with the departmental chairman or the chairman of the departmental graduate committee. A faculty adviser will be assigned who will assist the student in planning his program of study.

Grading System

Letter grades or *CR* (credit) may be given for formal courses, readings, independent studies, research, etc. Although letter grades may be given

for research, grades in research and in formal courses will be computed separately. A 3.0 average will be required in each of the two categories.

A final grade of *CR* may be given for thesis or dissertation. Such grades will not be used to compute the point average. A *final* grade for thesis or dissertation is not recorded until the oral examination is completed, the report filed in the Graduate College and the Office of Student Records and the copies of the thesis or dissertation are deposited.

A grade of *NR* means the instructor has not submitted a grade, or that there has been a processing error. The student should check with his instructor; if a grade was submitted, the student should go to the Office of Student Records to learn what is necessary to clear up the problem.

An *administrative incomplete* (*I**) is given by the Office of Student Records when a student fails to drop officially a course for which he has registered. Until removed, an administrative incomplete will be computed as an *F* in calculation of the grade point average.

Standards of Work

The minimum is a grade point average of 3.0 (*B*) on all courses counted toward satisfaction of degree requirements. No grade below *C* can be used to satisfy degree requirements. A department may establish more rigorous standards.

A grade of *CR* (credit), *PR* (progress) or other such approved grades may be given. Such grades will not be counted in computing the grade point average.

Courses of Graduate Study

Credit toward a graduate degree is given for the completion of courses designed for graduate students. Courses numbered 500-699 are master's level courses and those numbered 700-899 are post-master's or doctoral level.

Application for Graduation

The student must apply for graduation through the Office of Student Records and pay the application fee by the date indicated in the University calendar. If he fails to meet the requirements for graduation, he must reapply for the quarter in which he will complete requirements.

A list of deadlines which candidates must meet is available in the Graduate College Office.

A student must be registered at the graduate level in the quarter in which he receives the degree, or in *any* quarter in which he is using the facilities of the University or in which the University (a faculty member) is affording him some service, such as an examination, grading a paper, reading a thesis or dissertation, giving him advice

on the thesis or dissertation, etc. If the student has completed all of his course work, the registration may be for "Continuing Registration". A master's student registers for a minimum of one hour and a doctoral student for a minimum of two hours under this title on registration day. *Any exception must be approved by the Graduate College.*

Granting of Degrees and Commencement

Degrees are granted at the close of each quarter. The diploma is mailed to each student as soon as it can be ascertained that he has completed all requirements. *All work to be applied toward meeting degree requirement must be submitted no later than the last day of classes of the quarter in which the student expects to graduate.*

The annual commencement is held at the close of the spring quarter in June. Candidates for spring quarter graduation and recipients of degrees in the preceding summer, fall and winter quarters are invited to attend the exercises.

Academic costumes with the appropriate hoods are worn by candidates at the commencement exercises. The candidate will make his own arrangements for rental of the appropriate academic costume through the campus agency provided for this service. The doctoral hood is bestowed by the University upon doctoral students who attend the annual graduation exercises in June, 1974, and need not be rented.

FINANCIAL AIDS

Teaching, Research and Graduate Assistantships

A number of teaching assistantships, research assistantships and graduate assistantships are available in the Graduate College of Ohio University. Persons receiving these appointments are selected on a basis of merit from students who have received the baccalaureate and/or master's degree from approved institutions and who wish to pursue work leading to graduate degrees.

TEACHING ASSISTANTSHIPS carry stipends of \$2,500 to \$4,500 (for three quarters) and partial fees for the year of the appointment and partial fees during the summer quarters immediately preceding and/or following the appointment (except for a \$40 incidental fee each quarter).

A teaching assistant continuing study beyond the first year is eligible for consideration for reappointment to the assistantship. The assistant who has completed three quarters of service with an exceptionally good academic record may, on the recommendation of his department, be reappointed for a second year at an increased stipend with partial fees.

RESEARCH ASSISTANTSHIPS are established on the basis of grants-in-aid to the University for the conduct of research. Appointees to these assistantships must show exceptional aptitude for research. Their obligation involves the promotion of the research program of the department through which the grant is made. Research assistants render approximately 15 hours of service per week and normally carry nine to 13 quarter hours of work toward completion of their graduate programs. In general, the stipend and partial fees will be the same as those of a teaching assistantship.

GRADUATE ASSISTANTSHIPS are available in the area of student affairs (dormitories, discipline, activities, fraternities, off-campus housing), in the libraries and in certain other special areas. Compensation and partial fees are the same as those for teaching and research assistantships.

Appointments in the residence halls are made on the recommendation of the dean of residence life. These appointments are available to single or married men and women as resident directors in the residence halls. Compensation includes a furnished apartment and board for the appointee (and for his family if he is married) and a stipend plus partial fees. The resident director supervises functions of the residence hall and coordinates responsibilities of the senior assistants and undergraduate resident assistants assigned to work with him. The course load is nine to 13 hours per quarter. Application is made to the Graduate College for these appointments and by letter to the dean of residence life.

Traineeships and Fellowships

Ohio University has a limited number of named fellowships such as the Clippinger Fellowship in English and the Hiram Roy Wilson Fellowships in Chemistry, Botany and Zoology. In addition, a few fellowships are awarded by the Graduate College. The University participates in the NDEA Fellowship Program, NSF Traineeship Program, Rehabilitation Services Administration Traineeship Program, Education Professional Development Act, U. S. Office of Education Program, etc. Inquiries about the provisions and availability of appointments in any of these programs should be directed to the department of the student's interest.

Scholarships

An incoming graduate student who has maintained a high undergraduate average, or a graduate student who has maintained at least a 3.25 graduate average, may apply for a University scholarship. These scholarships require full-time study (15 quarter hours) and pay the comprehensive fee, with the exception of a \$40 incidental

fee each quarter. Information may be obtained by addressing the *Graduate College, Ohio University, Athens, Ohio 45701*.

Questions about teaching assistantships and graduate scholarships should be directed to the graduate chairman of the student's department.

Loon Assistance

NATIONAL DIRECT STUDENT LOAN PROGRAM

Graduate students may apply for a National Direct Student Loan for up to \$2,500 per academic year as long as the total amount borrowed does not exceed \$10,000. All students must apply prior to April 16 for 1973-74 academic year consideration. Awards will be made during the summer after such time as students are accepted for full-time enrollment in a graduate program.

Interest at a 3% simple rate begins nine months after graduation or termination of study. Repayment of the loan is required on a quarterly basis over a ten-year period beginning one year from the date the borrower graduates or leaves Ohio University. Borrowers who become teachers in elementary or secondary schools designated by the U.S. Commissioner of Education as having high enrollments of students from low income families are then eligible to receive up to 100% cancellation of the loan plus interest on a graduated basis over a five-year period. Some full-time teachers of handicapped children may also be eligible for the cancellation benefits. Any outstanding principal or interest may be cancelled upon death or permanent and total disability of the borrower.

The borrower may defer payment of the loan plus interest while maintaining at least half-time student status at an institution of higher education or at a comparable institution outside of the United States if approved by the Commissioner of Education. Deferment may also be granted for up to three years if the borrower is on full-time active duty as a member of the Armed Forces or is in service through the Peace Corps or VISTA.

All loans must be evidenced by a promissory note and all students are required to have a co-signer. Applications are available from January 2 through April 16.

For additional information concerning the NDSL program and for a graduate student financial aid application write *Director of Student Financial Aids, Chubb Hall, Ohio University, Athens, Ohio 45701*.

GUARANTEED LOAN PROGRAMS

Graduate students are eligible to borrow up to \$1,500 per academic year under the federally subsidized loan programs sponsored by various lending agencies. In most cases, no interest is charged until approximately nine months from the date

that the student either graduates or leaves school. Currently, the interest rate to the borrower is seven percent per year after the nine-month grace period terminates. Repayment periods vary from one to ten years depending upon the amount of the loan.

Students interested in this type of loan should contact their area banks, savings and loan associations, credit unions, etc., which may participate in this program, to obtain an application. *Completed applications should be forwarded to the Director of Student Loans, Chubb Hall, Ohio University, Athens, Ohio 45701* at which time they will be certified for enrollment and returned to the lending agency. Because new regulations are scheduled to go into effect March 1, 1973, students should check with their lending agencies for further information at that time.

College Work-Study Program

The present College Work-Study Program, originally part of the Economic Education Opportunity Act of 1964, was amended and extended by the Higher Education Act of 1965 when student eligibility was expanded to include all otherwise eligible students who are in need of earnings from part-time employment to pursue their studies. However, much of the emphasis of this federal program is still on poverty and the problems it creates. Many of the general policies reflect the concern for the special problems involving the very poor.

Applications for participation in this program should be filed with the Office of Student Financial Aids on or before April 16, 1973 for the 1973-74 academic year and, if funds are available after October 1, during the 1973-74 academic year. Although the number of hours that a student is permitted to work is determined by the amount of his award, the work performed is generally consistent with work performed at the graduate level. With the rate of compensation at \$3-3.50 per hour, the academic year award of \$1500 (\$500 per quarter) is determined by demonstrated financial need.

Unless the applicant is classified as an independent student according to federal regulations, enrollment at the graduate level does not, in and of itself, alter the responsibility of the institution to continue to take into reasonable consideration the resources of the parents. Likewise, if a student is married, his spouse's income must be considered as a prime source of support for the student's educational costs.

For additional information concerning the College Work-Study Program and a graduate student financial aid application write *Director of Student Financial Aids, Chubb Hall, Ohio University, Athens, Ohio 45701*.

THE GRADUATE PROGRAMS

Graduate degrees are granted in the following areas:

Accounting
Architecture
Art
 Art Education
 Art History
 Ceramics
 Painting
 Photography
 Printmaking
 Sculpture
*Botany
Business Administration
*Chemical Engineering
*Chemistry
Civil Engineering
*Comparative Arts
Curriculum and Instruction
 *Elementary Education
 *Secondary Education
 Special Education
Economic Education
Economics
*Educational Administration
*Electrical Engineering
*English Language and Literature
 French
 Geography
 Geology
 German
 Government

*Guidance, Counseling and Student Personnel
 Health, Physical Education and Recreation
*Hearing and Speech Sciences
*History
 Home Economics
 Industrial and Systems Engineering
 Industrial Technology
 International Affairs
 *Interpersonal Communication
 Journalism
 *Linguistics
 *Mass Communication
 *Mathematics
 Mechanical Engineering
 Music
 Applied Music
 Music Education
 Music History and Literature
 Music Theory and Composition
 Philosophy
 *Physics
 *Psychology
 Radio-Television
 Regional Planning
 Sociology
 Spanish
 Theater
 *Zoology and Microbiology
 Individual Programs of Study

*PhD granting areas

THE MASTER'S DEGREE

Residence and Credit

At least 45 quarter hours of credit are required for the master's degree. Additional hours may be required by individual departments. A maximum of 12 quarter hours of graduate credit with *A* or *B* grades may be accepted by *transfer* from approved institutions which offer the master's degree provided the transferred course work is acceptable to the student's adviser and is *not more than five years old*. Credit for courses taken by correspondence is not accepted toward the degree. At least 33 quarter hours of graduate credit must be earned on the campuses of Ohio University. At least one quarter or two summer terms (not necessarily consecutive) must be spent in an institutional full-time status on the Athens campus. Exceptions must be approved by the Graduate Council. A graduate student who is employed full time may, with the approval of his major adviser and the dean of the Graduate College, carry a maximum of six hours of credit in a quarter.

A student seeking the master's degree under either the thesis or nonthesis plan *must be officially registered for at least one quarter hour of credit in the quarter in which he receives his degree*. Any exceptions must be approved by the Graduate College. The adviser may recommend that registration be for more than the stipulated one hour.

Programs of Study and Student Load

A program of study approved by the student's adviser and by the graduate committee of his department should be developed early in the student's first graduate quarter.

Since graduate work implies advanced study and some degree of specialization, a certain amount of undergraduate preparation in a subject or field of study is presupposed before graduate study may be undertaken in that subject or field. In most departments a minimum of 27 quarter hours of undergraduate work is required for the major. The student is referred to the requirements listed by departments.

The normal full-time academic load for a graduate student is 15 credit hours per quarter. A student taking an academic load greater than 16 hours must secure written permission to do so from his adviser and from the dean of the Graduate College.

Examinations

A *major examination* may be required, at the discretion of the department. The nature and timing of the examination is determined by the department.

An *oral thesis examination*, for those submitting a master's thesis, may be given not later than the date indicated in the Graduate College calendar. The student and his thesis director, in consultation with members of the examining committee, set a time and place for the examination. The examining committee is composed of the director of the thesis as chairman and two or more additional faculty members. Results of the examination are reported to the Graduate College office and to the Office of Student Records on forms furnished by the Graduate College. This report should be filed as soon as *final* approval of the thesis is given.

Thesis Requirement

The candidate prepares his thesis under the guidance of his thesis director on a subject in the field of his major work. The thesis provides an opportunity for the student to formulate and express the results of his research and study. The thesis requirement may be met by the presentation of the results of a creative activity in literature, music, fine arts or industrial arts, together with a written essay indicating the purpose, procedure, problems and bibliography involved in the work. The *Format* which gives certain directions and suggestions about style is obtained in the office of the Graduate College. Each department, however, will prescribe the *specific style* manual to be followed by its students.

The student and his thesis director are responsible for the maintenance of accepted standards of grammar, sentence structure, punctuation, form and scholarly style in the thesis. It is recommended that the manuscript be put into final typed form by one who has had experience in thesis typing.

The final copies of the thesis must be distributed to the members of the student's examining committee *at least two weeks before the date of the oral examination* to allow adequate review of the manuscript prior to the examination.

After the thesis is approved by the Graduate College and not later than the date indicated in the Graduate College calendar, the candidate files two unbound copies of the thesis with the University librarian and one bound copy of the thesis in the office of the Graduate College. The two copies filed with the University librarian are bound and retained in the library, and the copy filed in the Graduate College is presented to the school or department in which the work has been done.

If the student desires a bound copy of his thesis, arrangements for this service can be made through the library.

Time Limit for the Master's Program

The maximum time allowed between the date when a student first registers for graduate study and the date when the requirements for the master's degree are completed is six calendar years.

Students who do not complete their requirements for the degree within the six-year period may be permitted to continue in graduate study only if exceptional circumstances are associated with the delay in progress. An extension of time is automatically granted to those students whose programs have been interrupted by military service.

THE DOCTOR OF PHILOSOPHY DEGREE

The doctor's degree is granted on the basis of evidence that the candidate has achieved a high level of scholarship and proficiency in research rather than solely on the basis of successful completion of a prescribed amount of course work. The student's competence and ability to work independently and to write creatively are established by qualifying and comprehensive examinations and the quality of a dissertation submitted as an account of his original research.

Residence and Credit

A minimum of nine quarters of study and research beyond the bachelor's degree is normally needed to meet the requirements of the doctor's degree. At least three academic quarters of the doctoral program shall be in *continuous residence on the Athens campus of Ohio University in an institutional full-time status*. The continuous residence requirement applies to the period of graduate study following the completion of the master's degree or the completion of the equivalent of approximately 45 quarter hours of graduate study.

Transfer of Credit

The amount of credit accepted toward the doctorate by transfer from another university will be determined by the graduate committee of the department concerned and the dean of the Graduate College.

Program of Study and Advisory Committee

The graduate committee of the student's department will assign him an adviser and an advisory committee, who will outline the proposed program of study for the degree. Graduate work completed at another university will be considered by the departmental graduate committee and the student's advisory committee in the development of the student's program of study.

The personnel of the student's advisory committee is reported to the dean of the Graduate College and is made a matter of the student's academic record.

As soon as the student begins to plan his dissertation, the departmental graduate committee chairman will recommend to the dean of the Graduate College, a faculty member to serve on his dissertation committee as a Graduate College representative.

Time Limit for Doctor's Program

The maximum time allowed from the date of initiating graduate work in the Graduate College of Ohio University and the date when requirements for the doctorate are completed is seven calendar years. If time elapses between completion of the master's degree and initiation of a doctoral program, that elapsed time will not be counted in the seven year time limit.

Students who do not complete requirements for the degree within the given period may be permitted to continue in graduate study only if exceptional circumstances are associated with the delay in progress. An extension of time is automatically granted to students whose programs have been interrupted by military service.

Comprehensive Examination

When his course work is virtually completed, and upon the recommendation of his advisory committee, the student takes his comprehensive examination, which is given for the purpose of establishing his mastery of the fields of specialization and his readiness for advanced research. The results of the examination must be reported to the Graduate College within *one week* on a form provided by the Graduate College.

Scholarly Tool Requirement

Each department shall determine the auxiliary research tools needed by candidates for the PhD degree. Competence will be determined by standards and methods established by the individual departments.

Each student who expects to demonstrate his proficiency in one of the scholarly tools in which examinations are arranged by the Graduate College, *e.g.*, statistics, computer science, etc., must file an appropriate *Intent Form*. These forms are available from and should be filed with the Graduate College. The student must be registered for a minimum of two hours in the quarter in which he takes the examination.

The French, German, Russian and Spanish proficiency examinations of the Educational Testing Service are given at Ohio University several times during the year. Information and application forms may be obtained at the Graduate College office.

Admission to Candidacy

Admission to candidacy must be achieved within four years after the student initiates doctoral work at Ohio University. The steps required are: (1) formation of the dissertation committee (including the Graduate College representative) and approval of the research proposal by this committee; (2) satisfaction of all required scholarly disciplines, and (3) successful completion of the comprehensive examination.

Appropriate forms for indicating completion of the above are available from and are filed in the Graduate College Office.

Dissertation

A dissertation, which is the scholarly account of research in a new area of knowledge, is submitted by each candidate. The student expecting to receive the PhD degree must be registered for at least two quarter hours of credit in the session in which he receives his degree. The adviser may recommend that registration be for more than the stipulated two hours. All exceptions must be approved by the Graduate College.

An *oral examination* on the dissertation shall be given not later than the date indicated in the Graduate College calendar. The examining committee shall be composed of the student's doctoral committee, with the dissertation director as chairman, and a representative of the Graduate College as appointed by the dean of the Graduate College. The final arrangements for the examination shall be completed *through the Graduate College Office at least ten days prior to the examination*. Details of the examination, including time and place, will be sent to the examiners and to the student from the Graduate College office.

No later than two weeks prior to the date of the oral examination at least three copies of the *finished* manuscript in final form must be distributed to members of the examining committee. The first or original copy is delivered by the student to the representative of the Graduate College who will serve on the examining committee.

By the date indicated in the Graduate College calendar of the quarter in which the candidate receives his degree, all approved copies of the dissertation, together with two copies of an abstract of 500 to 600 words (signed by the dissertation director) are submitted to the dean of the Graduate College for final approval.

At this time the original and the first copy of the dissertation, or copies as indicated in the *Format*, and one copy of the abstract are deposited in the University library.

The original copy of the dissertation will be sent to University Microfilms, Inc. for editing and microfilming, and will be made available for use by interlibrary exchange. It is then returned to the Ohio University library. The abstract will be published in *Dissertation Abstracts* by University Microfilms, Inc., Ann Arbor, Michigan. One copy of the dissertation will be bound as directed and given to the student's major department (after the degree is conferred).

Second Degrees

A student wishing to pursue a second master's degree may do so under the following conditions. In every case it is the responsibility of the student to inform the departments and the Graduate College of his intent to file formal application for admission to a second degree program. When two or more degrees are pursued, the details of each degree program must be approved in writing by all departments concerned and by the Graduate College in advance of admission to the additional program or programs. A minimum of one quarter of residency is required for *each* master's degree program. Whether the credit was earned at Ohio University or at another institution, no more than 12 quarter hours may be applied toward both degrees.

A student desiring to pursue a second PhD degree must have his plan and program approved by the appropriate departments and by the Graduate College. A minimum of one year of residency is required for *each* degree program.

MAJOR FIELDS OF GRADUATE STUDY

For further information regarding programs, courses, facilities, etc., write to
the Chairman of the Graduate Committee (of the department),
Ohio University, Athens, Ohio 45701.

ACCOUNTING

The master of science (accounting) degree provides for specialized education required for those entering the accounting profession. Accounting is a separate profession, with its own professional organizations and code of ethics, much like those of medicine and law. A student who is interested in accounting and who wishes to work toward an advanced degree will obviously seek out a program which is oriented toward his chosen profession.

The program is designed primarily for graduates of nonbusiness colleges; however, the graduate with a nonaccounting business major may modify the program to suit special needs. The MS program consists of 24 courses divided into two phases. Any or all of the 12 business foundation courses may be waived on the basis of undergraduate preparation, examination or relevant experience. The first phase courses are Economics I and II, Accounting Principles I and II, Legal Environment of Business, Business Finance, Management, Production, Mathematical Foundations, Statistical Foundations, Computer Foundations and Elements of Marketing.

All MS candidates must take 12 courses in the second phase. These include six advanced courses in accounting, one course in quantitative methods, one course in advanced finance and four elective courses in any approved field. A thesis is not required for the MS degree, but may be elected. For MS candidates especially well prepared or those electing to extend their programs, an opportunity exists for a three-month internship in the office of a public accounting firm.

Students who have had several courses in accounting at the undergraduate level are encouraged to enter the master of business administration program described subsequently, taking elective work in accounting, if necessary, to round out professional requirements.

As part of the admissions procedure, all applicants must submit scores for the Admission Test for Graduate Study in Business (ATGSB), administered by the Educational Testing Service, Princeton, New Jersey 08540. In addition, applicants from countries where English is not the native language must submit scores for the English Language Test of the English Language Institute, University of Michigan, Ann Arbor, Michigan or the Test of English as a Foreign Language (TEFL).

ARCHITECTURE

The School of Architecture offers a program of study designed to meet the various professional needs of persons involved in the practice of architecture. Concentration areas that may be pursued are architectural history and theory, urban design, architectural technology and programming.

The normal graduate program at Ohio University requires two years of study leading to the master of architecture degree. Established departmental and Graduate College entrance requirements must be met by all applicants, and accepted by the School of Architecture Graduate Division.

Students holding an undergraduate degree in disciplines other than architecture may apply for entry to the master's degree program. A minimum

of four years of study is normally required to complete this program. Counseling by the Graduate Division Coordinator is mandatory prior to acceptance into the school.

During the final year of the student's program, a major participation in a design thesis in the student's area of interest is required.

ART

The master of fine arts degree and the master of arts degree are offered in the School of Art.

The MFA degree, requiring completion of at least 90 quarter hours of graduate work, may be obtained in the following fields: art history, ceramics, painting, photography, printmaking and sculpture.

A studio thesis consisting of an exhibition of work done during regular classes or during time taken for studio thesis credit (five to ten hours) is required for a major in ceramics, painting, photography, printmaking and sculpture; a written thesis is required for a major in art history.

A minimum grade point average of 2.5 on all undergraduate work and a bachelor's degree from an accredited institution are requirements for admission to graduate study. The student must submit a portfolio to the director of the School of Art at the time of application for admission.

The MA degree is available in photography and art education. The MA in photography is oriented toward advanced work in the applications of photography to functions of personal use or to those of mass media, science and industry. Sixty quarter hours of graduate course work are required; a portfolio must be presented during the final quarter of study.

The master of arts in art education is designed for students who wish to teach art in elementary or secondary schools. A minimum of 45 quarter hours of graduate work in art history, studio art and art education is required of students who have completed teacher certification at the undergraduate level.

A cooperative arrangement with the College of Education makes it possible for uncertified candidates to earn a teaching certificate and the master of arts simultaneously. Students seeking certification at the graduate level must have completed an undergraduate major in a studio area (painting, printmaking, ceramics, sculpture, crafts) and have earned a 3.0 undergraduate accumulative average. Graduate certification programs are individually designed.

All applicants for master of arts candidacy are asked to submit a portfolio or slides of their work.

BACTERIOLOGY

(See Zoology and Microbiology)

BOTANY

Doctor of philosophy and master of science degree programs are offered in the following areas of specialization: biochemistry, cell biology, ecology, morphology, mycology, paleobotany, physiology, pteridology and systematics.

To begin graduate study the student must have at least 24 quarter hours, or the equivalent, of botany and/or related biological sciences. Applicants also must have completed calculus, inorganic chemistry and physics. Deficiencies in undergraduate preparation may be eliminated during the course of graduate study. Scores from both the aptitude and biology advanced tests of the Graduate Record Examination are required. Foreign applicants whose native language is not English must submit scores from either the English Test of the University of Michigan English Language Institute, Ann Arbor, Michigan, or the Test of English as a Foreign Language (TEFL) as an evaluation of English proficiency.

Organic chemistry is required for completion of graduate degrees. Course work in biochemistry and proficiency in one foreign language (French, German, Russian or other, depending on research needs) are required for the PhD degree. All graduate students in botany must teach a minimum of two quarters during their tenure in the department. A research thesis (MS) or dissertation (PhD) resulting from original research is required.

BUSINESS ADMINISTRATION

The master of business administration program is designed to enable the student to attain an integrated comprehension of business and industrial organizations and the administrative process, largely from a decision-making point-of-view. Accordingly, it seeks to provide a basic foundation in the functional areas of business, a background in concepts and techniques useful to the manager, exposure in depth to one or more major dimensions of the enterprise and additional coverage of pertinent subjects of interest to the individual.

The MBA program consists of 24 courses divided into two phases. Any or all of the 12 business foundation courses in the first phase may be waived on the basis of undergraduate preparation or examination. These courses are Principles of Economics I and II, Accounting Principles I and II, Law and Society, Managerial Finance, Management, Production, Elements of Marketing, Mathematical Economics Foundations, Statistical Foundations and Computer Foundations.

All MBA candidates must take 12 courses in the second phase. These include six (24 hours)

core courses, three courses in the area of concentration and nine hours of electives. Areas of concentration include accounting, economics, finance, management and organizational behavior, marketing and quantitative methods. Electives may be taken in any field, with the adviser's permission.

A thesis is not required for the MBA degree, but may be elected.

All applicants must submit a score for the Admission Test for Graduate Study in Business (ATGSB), administered by Educational Testing Service, Princeton, New Jersey 08540, and three letters of recommendation. In addition, applicants from countries where English is not the native language must submit a score for the English Language Test of the English Language Institute, University of Michigan, Ann Arbor, Michigan, or the Test of English as a Foreign Language (TEFL).

CHEMISTRY

Master of science and doctor of philosophy programs are offered in analytical, inorganic, organic and physical chemistry and in biochemistry. All degree programs include teaching and research experience.

To begin graduate work in chemistry, the student should have completed work in analytical chemistry, inorganic chemistry, organic chemistry and physical chemistry. Calculus and physics are also required. Deficiencies in undergraduate preparation may be made up during the first year.

Entrance examinations in inorganic, analytical, organic and physical chemistry are administered during a special series of orientation sessions during the period prior to the opening of the academic year. The results are considered in planning the student's course work.

The program of study is flexible in order to take advantage of the previous training of each student and to meet the particular needs of each individual in his specialized area of study.

COMPARATIVE ARTS

In the doctor of philosophy in comparative arts program emphasis is placed upon the interrelationship of major art forms. Work is taken in the history and theory of architecture, music, painting and sculpture, theater, film and dance.

Students entering this program should have a master's degree with major emphasis on the practical application of the fine arts. The undergraduate or master's degree program should include 24 quarter hours in the history of the fine arts.

Requirements for admission and for this degree include evidence of creativity such as portfolios, slides, tapes, designs, etc. The final research paper is a dissertation which is comparative in nature.

In addition to the requirements stated above, all candidates for the PhD degree in comparative arts must register for six quarters of Seminar in Comparative Arts (895). All candidates for the degree are also required to teach and/or engage in some performance activity as determined and supervised by the department.

ECONOMIC EDUCATION

The MA in economic education at Ohio University is administered by the faculty of the Department of Economic Education, College of Business Administration. Additionally, Ohio University offers a PhD that is administered by the faculty of the Department of Curriculum and Instruction, College of Education, in cooperation with the Department of Economic Education. For information about the PhD program, see listings in Education.

The MA is designed specifically for in-service and preservice teachers who have baccalaureate degrees and who meet the normal admission standards for the Graduate College and minimum departmental standards. A program of 48 quarter hours in economic education, economics and educational theory and research is required. Degree candidates are expected to take a minimum of 12 quarter credits in economic education and 27 quarter credits in economics. The student may elect either a thesis or a nonthesis program.

The total program must be planned with and approved by the graduate adviser. Applicants with little or no formal economics as undergraduates may be required to complete more than the 27 quarter hour minimum in economics.

ECONOMICS

A student beginning graduate work in the field of economics should ordinarily have undergraduate training which includes courses in the social sciences or business administration. It is recognized, however, that a wide variety of areas of concentration relate to or provide appropriate background knowledge for advanced study in economics.

Undergraduate courses in principles of economics, statistics, intermediate micro and macro theory and some quantitative orientation will ordinarily be deemed prerequisites for graduate work in this area, although students may be permitted to make up these deficiencies while pursuing a graduate program. In every case the student's undergraduate program must be approved by the departmental admissions committee prior to his beginning graduate work. Applicants are urged to take the Graduate Record Examination and submit scores with their applications.

All students seeking the master of arts degree are required to take history of economic thought, advanced microeconomic theory and advanced macroeconomic theory, and to specialize in two areas of economics (two courses for each area). All other courses are elective.

Students may choose either 41 quarter hours plus thesis, 45 quarter hours plus master's research paper or 48 quarter hours plus comprehensive examinations in two fields of concentration.

EDUCATION

SPECIAL NOTE FOR STUDENTS IN EDUCATION: Any student who has earned a master's degree in education at Ohio University and who plans to take any additional work in education must reapply through the Graduate College for admission.

The College of Education offers programs of graduate study designed to meet the academic and professional needs of those persons involved in the field of education.

Master's degree programs are offered in curriculum and instruction, which includes emphasis in elementary education, secondary education and special education, and in elementary and secondary school administration, and general educational administration. Guidance, counseling and student personnel master's programs are available for those who wish to be elementary or secondary school counselors, counselors in community or noneducational settings and student personnel workers. Master's programs are also offered in physical education and sports administration (see page 25) as well as in home economics education, foods and nutrition, textiles and clothing and child development and family life (see page 26).

Doctoral programs in educational administration; curriculum and instruction, which includes emphasis in elementary education and secondary education; guidance and counseling; counselor education, and student personnel are offered with opportunities to specialize in specific interest areas. Persons who wish to qualify for supervisory and other administrative certificates may do so through studies in administration and related areas.

Individuals who wish to pursue graduate study in education must meet established Graduate College entrance requirements and be accepted by the department which offers the program desired. Applicants for master's degree study must submit the results of the Graduate Record Examination (quantitative and verbal). Applicants for doctoral study must submit Graduate Record Examination scores (quantitative, verbal and advanced education tests) and the results of the Miller Analogies Test.

Anyone considering graduate work in education should arrange to complete the application process well in advance of the term in which he

plans to begin study since the Graduate Record Examinations may be taken only on certain dates throughout the year. Complete and detailed admissions information may be obtained from the Office of Graduate Studies in Education, McCracken Hall, Ohio University, Athens, Ohio 45701.

ENGINEERING, Chemical

Programs leading to the master of science and the doctor of philosophy degrees are offered. Major interests in the department are materials engineering (polymers and metals), transport phenomena, thermodynamics, kinetics, process dynamics and design and the usual related topics. Interests in bioengineering and computer process control are developing.

The basic requirement for admission to graduate study in the department is a BS degree in chemical engineering or in another engineering or science field. A student may be admitted to the program on a conditional basis where deficiencies exist in his undergraduate preparation, with the requirement that such deficiencies be removed through the taking of special examinations or course work assigned for this program.

In the MS program, both thesis and nonthesis options are available. The selection of the option to be followed by a student will be made by the department graduate committee after consultation with the student and his major adviser.

The usual minimum requirements are 33 or more quarter hours of course work plus a thesis. The courses may be selected from engineering, the physical sciences, mathematics or other approved disciplines. The specific program is designed by the student and his adviser as indicated by the student's interest and goals.

ENGINEERING, Civil

Master of science programs are offered with major study in solid mechanics, fluid mechanics, soils engineering, sanitary engineering, structures and transportation or in a combination of these.

Applications are invited from engineering or science graduates. Collateral work to remedy deficiencies of those without civil engineering degrees may be carried out in parallel with the MS program. Collateral requirements will depend upon the applicant's preparation in his major field of study. With the approval of his adviser, he may elect either the thesis or nonthesis plan.

ENGINEERING, Electrical

Programs leading to the master of science and doctor of philosophy degrees are offered. Areas of interest include computers and control systems;

communications, information and electronic circuitry; energy conversion and power systems; electromagnetic phenomena; avionics, applied instrumentation and remote sensing; network theory.

To begin the master's program requires a BS degree in electrical engineering or an equivalent degree in physical science, mathematics or engineering. Deficiencies must be made up by self study or by auditing (or taking without graduate credit) appropriate undergraduate courses.

Applicants with degrees other than BSEE or with degrees from noncredited (ECPD) institutions may improve chances of admissions by submitting GRE scores including the advanced test in electrical engineering.

To enter the PhD program the applicant must have an MS in electrical engineering or equivalent degree in the physical sciences, mathematics or engineering.

The master's degree requires 45 quarter hours including nine hours of thesis. The PhD requires 45 quarter hours of formal course work beyond the MS and 45 hours of research and dissertation.

ENGINEERING, Industrial and Systems

The graduate program of educational and research activity in the Department of Industrial and Systems Engineering is directed towards a primary mission of analyzing and designing complex systems of human, technical and economic resources within a variety of living and working environments. The program is designed to allow the individual student sufficient flexibility in attaining his goals. At the present time the graduate program leads to the awarding of a master of science degree. Specialized study concentrations are available in a number of areas of faculty interest; including operations research; systems simulations; decision theory; inventory and manufacturing control; behavioral systems, engineering and management; optimization theory; stochastic systems; management information systems engineering; computer systems analysis; industrial systems analysis and design; government, health care and prison system analysis; mathematical programming; man-machine systems and human factors engineering; engineering economics, and engineering statistics and experimental design.

The usual minimum requirements are 39 or more quarter hours of course work and a thesis; however, the student may also follow a nonthesis option. The course work may be selected from engineering, the physical and mathematical sciences, business administration or other appropriate disciplines. Research is required of all candidates for the master of science degree.

Applicants with a baccalaureate degree from an accredited engineering college and other related fields will be considered for admission to the MS program in industrial and systems engineering. Students entering the industrial and systems engineering program without an engineering background may be required to take up to 18 hours of undergraduate work including statistics and FORTRAN programming.

ENGINEERING, Mechanical

The master of science program in mechanical engineering is designed to allow the student considerable flexibility in establishing a curriculum suited to his own particular requirements. A student may concentrate either on a particular specialty or study a variety of subjects which provide broader coverage but of lesser depth. Programs also can be constructed which incorporate a substantial minor outside the field of engineering such as business, management, biological sciences, pre-law, geology, etc. Areas of concentration within mechanical engineering include kinematics vibrations, machine design, engineering mechanics, automatic control, metal processing, energy conversion, thermal machinery, heat transfer and propulsion. Courses which contribute to contemporary engineering practice are also drawn from related areas.

The minimum requirements are 33 quarter credits of course work and a thesis covering a research or an advanced design project. Students with prior professional experience in which research or design proficiency has been clearly established may substitute additional course work in lieu of the thesis. In such cases, the minimum requirement is 45 quarter credits of course work, including a report on a special investigation involving three to six quarter credits of effort.

Applicants with baccalaureate degrees in engineering or science are considered for admission. All applicants must demonstrate proficiency in basic undergraduate mechanical engineering subjects. Applicants not holding degrees from accredited engineering colleges may be required to make up deficiencies prescribed by the department and to submit a satisfactory score on the Graduate Record Examination.

ENGLISH LANGUAGE AND LITERATURE

The Department of English offers master of arts and doctor of philosophy programs in all areas of English and American literature and in English language, an MA program in creative writing and a PhD program in English with emphasis in comparative literature. The MA program is essentially

a nonthesis program, but under certain circumstances the candidate may, with the approval of his adviser, write a thesis.

The applicant to a master of arts program should present at least 27 quarter hours (18 semester hours) of superior work on the undergraduate level in English language and literature and should have completed at least two years of college work in a foreign language. Applicants without the foreign language but with otherwise outstanding qualifications may also apply, as may students who have had extensive training in academic fields significantly related to English.

All applicants should take the Graduate Record Examination (including the advanced test in literature) and submit their scores. If a student is admitted to the MA program without having taken the GRE, he must take it the first time it is offered at Ohio University after he has enrolled. All applicants should have letters of recommendation from at least three previous teachers.

Some teaching under supervision is required of students in graduate programs in English language and literature.

The fundamental requirement for the MA in English is 60 quarter hours of graduate credit, with course work spread out over five different fields of literature and a minor area, as specified in the pamphlet *Graduate Study in English* (available on request from the Department of English). Specifically required courses include The Teaching of English (first quarter) and Bibliography and Methods (second quarter).

Normally, the candidate will take a two-quarter proseminar sequence, offered in the second and third quarters, which will include the writing of a scholarly or critical essay roughly equivalent in scope to a master's thesis. The student may choose to write a thesis instead of taking the prosemantics, but he is likely to find the process a good deal more arduous and time-consuming, and the thesis program is generally not recommended. MA candidates in the creative writing program ordinarily do not take the prosemantics but produce instead original writing under the direction of members of the creative writing staff.

The final requirement for the MA in English is a written comprehensive examination, based on a reading list distributed early each academic year.

GEOGRAPHY

The Department of Geography offers the master of arts degree with specialization in physical and cultural geography and geographic techniques. The bachelor's degree and departmental approval are necessary for admission to the program. After acceptance, students participate in diagnostic interviews conducted by the geography faculty.

Specific degree requirements include at least 45 quarter hours of graduate study. Thirty of these hours must be in geography, of which nine hours may be used in thesis preparation. Required courses are Geog 670 (Geographic Thought) and Geog 675 (Library Research and Writing) and at least two seminars in geography. The student must complete an acceptable thesis on a topic agreed upon in consultation with the faculty adviser and the thesis committee.

Graduate students holding assistantships are required to teach laboratory sections or to assist staff research on a part-time basis.

GEOLOGY

The master of science degree is offered in the following fields of geology: geomorphology, glacial geology, hydrogeology, paleontology, paleoecology, stratigraphy, economic geology, mineralogy, petrology, sedimentology and structural geology.

Undergraduate majors in physics, mathematics, chemistry, civil engineering and geology may also study for the MS degree in a special program in hydrogeology.

Graduate students desiring a master's degree in geology must have completed the equivalent of 45 undergraduate quarter hours in geology, including courses in physical geology, historical geology, crystallography and determinative mineralogy, petrology, geomorphology, paleontology, sedimentology, stratigraphy and structural geology. At least nine quarter hours each of chemistry, physics and mathematics through differential and integral calculus are required. Students unable to meet the above requirements will be asked to make up deficiencies without graduate credit. The Graduate Record Examination is required for admission. Students will take qualifying examinations in several general fields of geology early in their first quarter. Credit in a recognized field camp is required, but may be taken during the first graduate summer. A further requirement is a thesis on a subject approved by the student's adviser and the departmental graduate committee in one field of specialization.

Graduate students holding departmental assistantships must teach laboratory sections or assist staff research on a part-time basis.

GOVERNMENT

The master of arts degree is offered in all major areas of political science. These include American government and public administration, public policy, theory and methodology, comparative government and area studies, as well as international relations and international law and organization. A comprehensive examination in the field of concentration is required of all candidates. The

department offers both a thesis and a nonthesis option for its MA degree. Completion of 45 quarter hours of graduate credit is required, of which seven are credited for the writing of a thesis.

To begin a graduate major in government a student should have permission or the equivalent of 27 hours of undergraduate work in government. Applications will also be considered from students with academic backgrounds in areas closely related to political science. Submission of Graduate Record Examination scores is encouraged but not required. A limited number of departmental assistantships are available to qualified applicants. Holders of these assistantships are normally expected to assist in the instruction of the introductory courses.

HEALTH, PHYSICAL EDUCATION AND RECREATION

Programs leading to the master of science or the master of education degree are offered in physical education. Also offered is a master's program in physical education with a major emphasis in sports administration.

The student may elect to follow one of three options as he plans his graduate study. Plan A requires the completion of 39 quarter hours of course work in addition to a thesis for which six quarter hours of credit are given. Plan B requires the student to complete 46 quarter hours of course work plus a research paper for which four quarter hours of credit are given. Plan C requires the completion of 50 quarter hours of course work. Plan A leads to the master of science degree, and plans B and C lead to the master of education degree.

To begin a graduate major in physical education, a student must have 36 quarter hours of undergraduate work in physical education, unless he is a candidate for the degree in physical education with an emphasis in sports administration.

Applicants are required to submit scores on the Aptitude Test of the Graduate Record Examination prior to admission.

HEARING AND SPEECH SCIENCES

The graduate program leading to the MA and PhD degrees provides course structure and required practicum in speech pathology, audiology, speech science and combinations of these areas for students who wish to concentrate in clinical therapy and diagnostics, supervision and administration and research activity or teaching opportunities.

Prospective graduate students should present undergraduate course hours in speech pathology, audiology, speech science and areas related to the course of study to be pursued. The suitability of

courses in related areas will be determined by the School of Hearing and Speech Sciences. All entering students must complete successfully four core examinations in phonetics, speech science, language development and basic audiology after they arrive on campus. At the time of acceptance the school will notify the applicant whether a time period in excess of the usual degree program will be required to earn his degree. Academic ability, experience records and personal recommendations are considered.

The school program meets certification requirements of the American Speech and Hearing Association, and the program in speech pathology has been accredited by the Education and Training Board of the American Boards of Examiners in Speech Pathology and Audiology. The graduate program, in addition to University support, has various support programs from federal grants in a variety of graduate award opportunities. Under normal conditions the school will not provide support for an MA candidate beyond four academic quarters.

Every student is required to spend time in observation and participation in diagnostic and therapy activities, as well as preparation in academic areas. Practicum requirements in laboratory and teaching activity are considered individually. Training and service are combined in campus clinic, local schools, local retardation programs, five county speech clinics, itinerant pediatric-otological clinics and other activities. The on-campus diagnostic clinic offers a wide range of services for training. Off-campus internships are available, located in hospitals and general clinics. Extensive laboratory facilities provide experience in investigation of acoustical, physiological and behavioral aspects of communication. An MA nonthesis option is available, with faculty approval.

HISTORY

The graduate program in history is intended principally to prepare students for secondary school teaching (master's degree) and teaching at the college level (PhD degree). Each applicant is expected to have completed 24 semester hours or 36 quarter hours of undergraduate history courses, including basic survey courses in European and American history or their equivalent, and at least three semester-length or four quarter-length courses at the junior-senior level. Exceptions to this requirement may be considered for applicants with outstanding undergraduate records in other fields.

Master's Program

An MA program is offered with work in the history of the United States, Europe, Latin America, Africa, Middle East and East and Southeast Asia. Thesis and nonthesis programs are available. (See areas and special fields listed under Doctoral

Program below.) The general requirement for the MA in the thesis program is 32 quarter hours of course work plus a 16-quarter hour thesis-seminar combination. The general requirement for the nonthesis is 48 quarter hours of graduate courses including a seminar in which a research paper is written. No foreign language is required for admission to the program, but students in the thesis program must demonstrate a reading proficiency in one foreign language prior to submission of the thesis. The nonthesis MA program (M.A.T. equivalent) is usually regarded as terminal.

Doctoral Program

The candidate must offer a minimum of six quarters of residence credit as a full-time equivalent student beyond the master's degree, and should devote himself entirely to his graduate program. Each candidate is required to show reading proficiency in at least two foreign languages where language training is essential to major research. Finally he must complete a minor of 15 graduate hours in one cognate field or of 18 hours in two cognate fields, and an area of concentration either in Modern European or American history. Within his area of concentration the student will select two special fields, in one of which he will write his dissertation, and two special fields outside his area of concentration. Main areas of graduate study are as follows:

Area One: American History—Colonial, 19th Century, 20th Century, Diplomatic.

Area Two: European—Western Europe, Diplomatic, Tudor-Stuart England, England since 1714, Balkans, Russia.

Area Three: Ancient, Medieval, Renaissance and Reformation, Middle East and Mediterranean, Africa, Southeast Asia, East Asia, Latin America.

The PhD doctoral dissertation fields are restricted to the following areas:

American History—Colonial America, 1607-1783, 20th Century, Diplomatic.

Modern Europe—Western Europe, 1870-date, European Diplomatic, 1870-date.

HOME ECONOMICS

The School of Home Economics offers graduate programs leading to the master of science degree in four fields: home economics education, foods and nutrition, textiles and clothing and child development and family life. In addition, an interdivisional program leading to a master of education degree is offered for home economics or family life teachers in junior-senior high schools or community colleges.

A prospective graduate student should have a minimum of 20 quarter hours of undergraduate preparation in the field of home economics in

which he wishes to specialize or in approved related fields or both. For a student majoring in home economics education, a minimum of 24 quarter hours of undergraduate credit distributed among at least three areas of home economics is required. Deficiencies may be made up during the first quarter of study.

A student holding a bachelor's degree from an accredited college or university, who has attained an undergraduate scholastic point-hour ratio of 2.7 (A=4.0) or better on hours attempted, and a 2.9 in the last 90 hours of course work in the area of the proposed major, will be considered for admission with regular status in the Graduate College. Further supporting evidence of the student's ability in the form of the Graduate Record Examination and letters of recommendation is also required.

INDUSTRIAL TECHNOLOGY

Programs are available for both thesis and nonthesis plans, and the MS and MEd degrees are granted. Related courses from other areas of the University are normally specified within each program, as approved by the major adviser and the departmental graduate committee.

A minimum background of 36 quarter hours earned in technically oriented areas is expected of students admitted to regular status. Persons not meeting this minimum prior to acceptance may have equivalent undergraduate course requirements added to their normal graduate programs.

INTERNATIONAL AFFAIRS

The Center for International Studies offers an interdisciplinary master of arts degree. The student may concentrate his work on a major world region such as Africa, Southeast Asia or Latin America, or may, with the help of an adviser, develop a program of courses which would give him a knowledge of international problems and institutions. The degree is intended to give the individual freedom to develop a program suited to his academic and professional requirements from more than 100 courses and seminars offered each year.

Students are required to complete a minimum of 45 quarter hours. Courses dealing with a major world area such as Asia, Africa or Latin America, or courses with international content, should be selected from not fewer than three of the following: art history, comparative arts, business administration, communication, economics, education, English literature, geography, government, history, journalism, linguistics, philosophy and sociology, anthropology.

Students are required to demonstrate an acceptable level of achievement in an Asian, African, Latin American or (in some cases) European

language pertaining to the area of concentration. An acceptable level of achievement may be demonstrated in either of the following ways: (1) complete satisfactorily a minimum of one academic year in Chinese (Mandarin), Hausa, Indonesian/Malay or Swahili, taught at Ohio University. These credit hours cannot be counted as one of the discipline requirements, but may be used to complete the 45 hours required for the degree; (2) examination by the center or evidence of acceptable level of achievement in examinations administered by other recognized agencies.

For Spanish and Portuguese the student must demonstrate competence at the intermediate level (the equivalent of 24 undergraduate quarter hours). The acceptable level of achievement may be demonstrated through examination by the center or evidence of acceptable level of achievement in examinations administered by other recognized agencies. Credit hours taken in Spanish and Portuguese by graduate students cannot be counted as one of the discipline requirements, nor may they be used to complete the 45 hours required for the degree.

A thesis is not required but may be written if it seems desirable from the point of view of the student's academic and professional goals. The number of quarter hours granted for the thesis will be determined by a committee made up of representatives both of the area studies program concerned and faculty members with special knowledge of the thesis subject.

The criteria for admission are a baccalaureate degree from an accredited college or university; the quality of the student's undergraduate record, usually including a minimum 3.0 average in his undergraduate major; work experience; letters of recommendation which reveal motivation, intellectual maturity and prospect of success in graduate work.

INTERPERSONAL COMMUNICATION

Graduate study in the School of Interpersonal Communication follows the principle that the program of study for each student be tailored to his individual needs and capabilities, based on his background and professional goals. After completing the particular degree requirements, a graduate student is expected to have the appropriately broadened perspectives and attitudes of a generalist, with the commensurate knowledge and skills of a specialist.

Both the MA and PhD degrees are offered; the appropriate degree may be pursued through study and research typically in one or more of the primary areas of communication theory and process, organizational communication, rhetoric and

public address and speech education. Additional primary areas representing emerging emphases (information systems, intercultural communication, etc.) are possible, depending upon the recommendation of the student's advisory committee.

Academic ability, experience records and personal recommendations are considered in the admission of students to the graduate program. Those accepted may be required to make up any deficiencies through further work at the undergraduate level or by additional graduate courses, according to the needs of the individual student.

Methodology used in thesis or dissertation research may be experimental, descriptive or historical, and it may be quantitative or nonquantitative. A multidisciplinary approach to communication is emphasized. A nonthesis program for the master's degree may be followed, with faculty approval.

Graduate teaching assistants may serve as instructors in basic courses, assist in the teaching of advanced courses or help with special research projects or the extracurricular program in forensics.

Various college and school agencies are available to assist the graduate student with research projects. The Center for Communication Studies offers opportunities to generate and conduct research across a broad spectrum of communicative behaviors. A well-equipped Speech Communication Resource Center, listening laboratory and closed-circuit TV studio are available to graduate students for research and teaching.

JOURNALISM

(See also Radio-Television)

The School of Journalism offers the master of science degree. Also, in cooperation with the School of Radio-Television, it offers the doctor of philosophy in mass communication.

The master's program is designed to prepare students for professional journalism or for further academic work. The program blends professionally oriented courses with courses in the principles and theory of mass communication. Admission will be based on the student's academic or professional background or both. Applicants need not have an undergraduate major in journalism.

Master's degree students may choose among three plans: Plan A requires 45 quarter hours including a six-hour thesis; Plan B requires 51 quarter hours including a one-quarter six-credit internship, and Plan C requires 60 hours including two three-hour independent study projects.

The core requirement for all three plans includes six courses totaling 31 quarter hours, but any core requirement will be waived if the student has had an appropriate undergraduate course in the subject.

Doctoral applicants must have a master's degree, preferably in some phase of communication. At least 90 quarter hours of credit beyond the master's degree are required, including up to 30 quarter hours for the dissertation. The student must complete at least 27 quarter hours in journalism and radio-television courses at Ohio University and must have a total of at least 54 quarter hours of graduate work in mass communication including his master's degree work. The student also must complete a minor of at least 18 hours in a related field such as English, history, government or sociology.

Master's or doctoral candidates in other fields may minor in journalism with the approval of the graduate coordinator.

LINGUISTICS

Nonthesis master of arts programs are offered in general linguistics and applied linguistics, including Teaching of English as a Foreign Language (TEFL) and area linguistics of Africa and Southeast Asia. Some linguistics MA programs require more than the Graduate College minimum of 45 hours. For example, four sequential quarters beginning in September are necessary to complete the requirements of the TEFL curriculum.

A PhD in applied linguistics is offered by the faculty of the Department of Linguistics and faculty in other departments of the University whose professional concerns are in linguistics or related fields, such as audiology and speech science, English, psychology, European languages, sociology-anthropology and education. Requirements for the degree include some teaching by candidates.

Admission to graduate study in linguistics requires no specific undergraduate preparation but backgrounds in English, foreign language, psychology, mathematics or philosophy are particularly relevant. An applicant may submit GRE scores if it is felt that these will be helpful to the admissions committee's decision. Candidates for admission are strongly urged to take advantage of this option. Also essential is the equivalent of two years of college-level study, or concurrent non-degree study, of one foreign language. Nonnative speakers of English may use their previous study of English to satisfy this requirement. Teacher training and experience are highly desirable preparation for native students intending to follow the TEFL curriculum. For nonnative applicants for admission to the TEFL program, teacher training and an undergraduate major in English are required. Applicants for the PhD degree must have completed an MA in linguistics or its equivalent.

For the PhD, a reading knowledge of two languages from among French, German and Russian is required. However, the student may petition for substitution of an alternate language or other

appropriate scholarly tool for one of the languages. This requirement is the same for nonnative students: i.e., two research tools are required in addition to English.

MASS COMMUNICATION

(See Radio-Television and Journalism)

MATHEMATICS

The Department of Mathematics offers the master of science degree and the doctor of philosophy degree. There are no fixed programs, but each student's study plan is designed to meet the individual needs and interests. He may elect to concentrate in a particular area with the intent of ultimately doing research in this area or he may choose a broad program to prepare for a non-research career such as college teaching.

To be admitted to graduate study the applicant should have an undergraduate grade average of at least *B*. His undergraduate program in mathematics should have included advanced calculus and junior or senior level courses in abstract algebra and linear algebra. If he is admitted with deficiencies, he will be expected to make up the work he is lacking during the first year.

The master of science degree can be taken with or without a thesis—no examination is required. Under the nonthesis option, the minimum amount of course work is 45 quarter hours, half of which must be earned in course sequences numbered 600 or higher. If most or all of the student's work is on the 500 level, the graduate committee may require that he take more than 45 hours, but not over 60. The course work should include at least two mathematics sequences.

Although no specific courses are required for the PhD degree, each student must pass a comprehensive examination covering the material commonly presented in one year, beginning, graduate sequences in the basic fields of algebra, analysis, complex variables and topology. However, if the student wishes, and his adviser recommends it, he may have his examination limited to three of these four fields, in which case he is expected to take the courses in the fourth field or a suitable substitute approved by the graduate committee. Before the student starts a dissertation, his adviser may require an examination to establish readiness.

The dissertation is expected to be a scholarly work demonstrating the student's ability to understand, organize, improve and present mathematical ideas of outstanding importance, depth or interest. It should be worthy of publication.

The Department of Mathematics encourages its students to develop the ability to read mathematics in those languages which predominate the

literature of the discipline. Students in post-master's courses will be expected to understand mathematics written in one or more of the following languages: French, German and Russian.

MICROBIOLOGY

(See Zoology and Microbiology)

MODERN LANGUAGES

Master of arts programs are offered in French, German and Spanish. Courses for a secondary area are available in Italian, Portuguese and Russian. Thesis and nonthesis programs are available. The student should have a reading knowledge of a second foreign language. In lieu of this, he must complete two courses in linguistics in addition to the 45 quarter hours required for the MA. Students are urged to travel and study abroad, especially during the summer.

Students may also earn a master of education with certification and a major in one modern foreign language, or a PhD in education with 45 quarter hours in one modern foreign language.

To begin a graduate major in a modern foreign language, the student must have completed an undergraduate major of 35 quarter hours beyond course 241 or the equivalent in that language. To begin work in a secondary area of modern languages, the student must have completed a minimum of six hours of undergraduate work at the 300 level or the equivalent in the language. Deficiencies in undergraduate preparation should be made up during the summer quarter preceding graduate work or during the first quarter of study.

MUSIC

Programs leading to the master of music degree, requiring a minimum of 45 quarter hours of graduate work, are offered in applied music (performance), theory and composition and music history and literature. Both the master of music and the master of education degrees are offered in music education. A thesis or its equivalent is required in all programs except in music education where a 48-quarter hour (minimum) nonthesis option is available. Majors in applied music perform a public recital, while majors in composition present a composition in a large form in lieu of a thesis. An oral examination is required of all candidates.

To begin a graduate program in music, a student is required to have completed, with at least a 2.5 accumulative average, an undergraduate curriculum in music from an accredited institution offering an undergraduate degree equivalent to the requirements of the National Association of Schools of Music. Music education students not holding standard certification must earn Ohio certification.

All applicants for admission should submit their scores on the Graduate Record Examination, including the Advanced Test in Music. If a student is admitted without having taken these tests, he must take them during the first quarter at Ohio University.

Personal auditions and interviews should be arranged by all candidates. (Taped auditions will be accepted only if a personal audition is difficult or impossible.) Candidates in composition must submit scores and, if possible, include tapes.

After admission has been granted, placement examinations are given to all entering graduate students during registration week of the first quarter of enrollment. An incoming student is required to demonstrate performance ability on his principal instrument and to take a proficiency test in theory and history and literature of music. Music education majors are required to take an additional examination in music education. The results of these placement tests are used in planning the student's course of study. Applied majors must demonstrate graduate level performance proficiency. Deficiencies in undergraduate preparation should be removed during the first year of study.

PHILOSOPHY

Only students who have received a 3.0 (B) average in their undergraduate courses in philosophy and 2.5 average in other undergraduate courses will be admitted as majors in philosophy. The prerequisite for beginning a graduate major is 18 hours, including courses in ethics, logic, the history of ancient philosophy and the history of modern philosophy.

The master of arts degree in philosophy is granted upon the satisfaction of either of two sets of requirements:

The thesis plan involves completion of 45 quarter hours, including one course from each of two of the following three groups: A. 518 Plato, 519 Aristotle; B. 528 Continental Rationalism, 529 British Empiricism, 538 Kant, 539 19th Century European; C. 514 Philosophical Analysis, 548 Pragmatism, 558 Contemporary German Philosophy, 559 Contemporary French Philosophy, 568 Phenomenology and one course from each of the following: (1) 530 Contemporary Ethical Theory, 531 Esthetic Theory, 540 Contemporary Social Philosophy; (2) 516 Philosophy of Science, 521 Logical Theory, 550 Theory of Knowledge, 551 Metaphysics and submission of an acceptable thesis.

The comprehensive examination plan requires completion of 45 quarter hours and passing comprehensive examinations based on selected readings.

PHOTOGRAPHY

(See Art)

PHYSICS

Master of science, master of arts and doctor of philosophy programs are offered in physics. The principal areas of research include cosmic physics, elementary particles, nuclear physics, ultrasonics, low temperature and solid state physics. Both experimental and theoretical studies are in progress in most of these areas; there are also theoretical studies in many-body problems, nonlinear mechanics and electrodynamics.

A student should present evidence of successful undergraduate work in mathematics, mechanics, electricity and magnetism, thermodynamics, optics, atomic and nuclear physics and quantum mechanics. It is recommended that applicants take the Graduate Record Examination, including the advanced test for physics. Deficiencies of undergraduate preparation should not deter a prospective student with an otherwise good record, as these may be made up during the first year of graduate study.

The MS degree can be earned either under a nonthesis option (which nonetheless requires satisfactory completion of a work project) or by submission of a research thesis. For the MA degree a scholarly paper is required on a special topic, not confined to the research areas listed above.

No fixed number of credits is required for the PhD, but the student must pass a comprehensive examination, which consists of a written and an oral part, usually taken after two years of graduate study (one year for students entering with an MS degree). For the PhD degree a student must satisfy the department that he has an adequate reading knowledge of French, German or Russian. Research is conducted under the supervision of an adviser and reviewed periodically by each student's dissertation committee. A final oral examination is held on the subject matter of the dissertation. For details concerning graduate programs, write to the chairman of the Physics Graduate Committee.

PSYCHOLOGY

The master of science (or master of arts) degree is granted after 45 quarter hours of acceptable work, including a research thesis. A specialized master's degree emphasizing clinical, experimental, counseling, school or industrial psychology is offered for those who want specialization in a specific area but do not wish to complete the PhD. A total of 70 quarter hours is required for this degree. It may be a terminal degree or a basis for continuing in doctoral study.

Doctoral programs are offered in general-developmental, general-experimental, general-social, industrial, counseling and clinical psychology. The clinical program is approved by the American

Psychological Association. For the doctor's degree the student must satisfactorily complete a scholarly tool which has been accepted by his advisory committee. Each doctoral candidate will be required to do some teaching, professional or clinical work under supervision, the specific amount to be determined by his past experience and needs, but not less than the equivalent of three academic quarters of work. A research dissertation is required and a year's internship at an APA-approved facility is also required for the clinical or counseling PhD. Comprehensive examinations are given at both the master's and doctor's levels. The department is scientifically oriented, requiring a core of courses in statistics and systems of psychology of all graduate students.

Applicants for graduate study are expected to have completed 27 quarter hours of undergraduate psychology, including statistics and experimental psychology. Deficiencies of undergraduate preparation may be made up during the first quarter of graduate study. Applicants must submit scores on the Graduate Record Examination, including the aptitude test and advanced test in psychology, and three letters of recommendation from psychologists. They must have an overall undergraduate average of 3.0 (A=4). Applicants for the doctoral program must have a master's degree in psychology with a graduate average of 3.4, and must submit the test scores and recommendations required of a beginning graduate student, plus the Miller Analogies Test score.

RADIO-TELEVISION

(Including Moss Communication)

The School of Radio-Television offers a program of study leading to the master of arts degree in radio-television. Also, in conjunction with the School of Journalism, it offers the degree of doctor of philosophy in mass communication. Individual programs are designed around sequences of graduate courses offered in the areas of media management and economics, mass media research, writing and production, history and criticism of mass media, theory and social effects of the media.

Laboratory facilities are provided by stations WOUB-AM-FM-TV. Practical application of such concepts as industry economics and management, as well as field research in media uses and impact, is provided through an ongoing program of contract studies which the school's Broadcast Research Center conducts for commercial broadcasters, foundations and government agencies.

Admission to the Graduate College for study in radio-television at the master's level requires a baccalaureate degree with an overall average of at least 2.5 on a 4.0 scale. The student may pursue either a thesis or a nonthesis option leading to the

master's degree. Admission for study at the doctoral level requires a completed master's degree.

On occasion, the applicant whose grade point average is below the prescribed minimum may be admitted conditionally, if additional supporting evidence suggests such admittance. All applicants are required to submit letters of recommendation to the School of Radio-Television. Scores of either the Graduate Record Examination aptitude test or the Miller Analogies Test are also required.

Graduate programs in radio-television are prepared individually for each student and are designed to help him reach his personal and career goals by optimum use of the school's resources. The master's student is prepared for effective contributions to the fields of electronic media of communication. The PhD is a research degree which prepares the student for a career in college teaching or advanced media research.

SOCIOLOGY

A master of arts degree is offered in sociology and may include a secondary area in a different discipline.

To begin a graduate major in sociology a student should have completed a minimum of 20 quarter hours in sociology or anthropology or both, including a course in statistics. He should have at least a 3.0 average in his undergraduate courses in sociology and anthropology. Major consideration will be given to the applicant's reasons for wishing to pursue graduate study in sociology.

An applicant should arrange for letters of recommendation which should include information about his interests and plans.

Both thesis and nonthesis programs are offered. A limited number of teaching and research assistantships are available.

THEATER

The School of Theater offers programs leading to the master of arts and master of fine arts degrees. An applicant must have earned a baccalaureate degree from an accredited college or university and be able to demonstrate motivation and/or talent for the program of his choice.

The MA degree provides a major in theater history and dramatic literature. A minimum of 45 credit hours (up to six of which may be thesis) and a residence of three quarters are required. The thesis will be of a historical or critical nature.

The MFA is a professional degree and requires a minimum of 72 credit hours (12 of which may or may not be thesis) and six quarters residence.

The major field may be selected from acting, directing, production design, playwriting or children's theater. An applicant for one of these programs must demonstrate his qualifications by audition, submission of portfolio or manuscript and/or interview. Throughout the program the student will be closely observed and his progress reviewed at intervals. At the end of any quarter, the student may be asked to modify his program, transfer to another program or be denied further enrollment as a degree candidate in the school.

ZOOLOGY AND MICROBIOLOGY

For admission to graduate study in zoology and microbiology a student must have an accredited baccalaureate degree and have a strong background in the biological sciences. In addition, training in mathematics (including calculus), physics and organic chemistry is required. Deficiencies must be removed sometime during the course of graduate study. The Graduate Record Examination is required of all applicants.

Master's candidates are expected to complete 45 quarter hours, including a minimum of 29 hours of formal courses and seminars. A nonthesis master's program is available for secondary school or junior college teachers.

Doctoral candidates are recommended to complete 135 quarter hours, including a minimum of 45 hours of formal courses and seminars.

Research may be done in one of the following areas: cell biology, physiological and behavioral sciences, ecology, microbiology, entomology and vertebrate and invertebrate zoology.

INDIVIDUAL PROGRAMS OF STUDY

A graduate student with considerable experience and demonstrated ability and intellectual maturity can develop a program that includes three or more disciplines under the administrative supervision of the Graduate College. A committee of faculty from the appropriate areas is selected with approval of the Graduate Dean. The composition of the committee is the most crucial aspect of this approach. Each committee member must have extensive experience in supervision and direction of graduate students and a strong record of professional activity as well as a commitment to a program of study with breadth and depth. The committee is responsible for preparing the program requirements for the student, for the administration of comprehensive examinations and the direction of the thesis or dissertation. Each aspect of the program and the progress of the student are reviewed periodically by the Graduate College according to strict standards of performance.

UNIVERSITY ADMINISTRATION

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Ohio University Bulletin

GRADUATE COLLEGE 1973-74 - PART II - COURSE DESCRIPTIONS

AUGUST, 1973

1973-74 Graduate College, Part II

Ohio University Bulletin

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The programs and requirements contained in this bulletin are effective with the 1973 fall quarter.

They are necessarily subject to change without notice at the discretion of the University.

Each student should assume responsibility for knowing current Graduate College requirements and for complying with current procedures.

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ACADEMIC CALENDAR FOR 1973-74

The student should obtain from the Graduate College Office a detailed list of deadlines for the quarter in which he expects to receive the graduate degree.

FALL QUARTER, 1973

Sept. 25, Tues.	Registration
Sept. 26, Wed.	Classes begin
Oct. 8, Mon.	Last day for filing application and paying fee for conferral of degree on December 15
Nov. 22, Thurs.	Thanksgiving Day holiday
Nov. 26, Mon.	Classes resume with first scheduled class
Dec. 15, Sat.	Quarter closing date

WINTER QUARTER, 1974

Jan. 4, Fri.	Registration
Jan. 7, Mon.	Classes begin
Jan. 15, Tues.	Last day for filing application and paying fee for conferral of degree on March 16
Mar. 16, Sat.	Quarter closing date

SPRING QUARTER, 1973

Mar. 25, Mon.	Registration
Mar. 26, Tues.	Classes begin
Apr. 4, Thurs.	Last day for filing application and paying fee for conferral of degree on June 8
May 27, Mon.	Memorial Day holiday
June 8, Sat.	Quarter closing date; Annual Commencement

SUMMER QUARTER, 1974

(First Term)

June 17, Mon.	Registration
June 18, Tues.	Classes begin
June 24, Mon.	Last day for graduate students to file application and pay fee for conferral of degree on August 24
July 4, Thurs.	Independence Day holiday
July 20, Sat.	Term closing date

(Second Term)

July 22, Mon.	Registration; classes begin
Aug. 24, Sat.	Quarter closing date

A graduate student must be registered in any quarter in which he is receiving any service from the University or using its facilities. A master's student must be registered for at least one hour and a doctoral student for at least two hours.

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Louis E. Wright, PhD, *Associate Professor of Physics*
Diane Casbolt, *Graduate Student*
Lee McGaan, *Graduate Student*
Neal Sobania, *President of the Graduate Student Council*
Vaughn Vandergrift, *Graduate Student (alternate)*

COURSES OF INSTRUCTION

The general policies and regulations of the Graduate College are published in the 1973-74 edition of *Ohio University Bulletin, Part I, General Information*.

Prospective students are invited to write to the chairman of the departmental graduate committee about any detailed information that is not included in the bulletin.

The programs and requirements described in this bulletin are necessarily subject to change without notice at the discretion of the University.

CATALOG NUMBER — The catalog number indicates the student classification for which the course is intended.

500-699 Master's level

700-899 Post-master's or doctoral level

CREDIT — Credit for a course is indicated by the number or numbers in parentheses following the course title.

In a course carrying variable credit the credit may be expressed thus: (1-4), indicating that one hour is the minimum and four hours the maximum amount of credit allowed for the course in one quarter. A student may enroll for a course with variable credit any number of times and for any number of quarter hours, within the quarter limit, provided the total registration for the course does not exceed the maximum credit indicated in the course description.

Course prerequisites are indicated at the beginning of course descriptions following the abbreviation, "Prereq:". A student who completes an advanced course may not subsequently enroll in a prerequisite course for credit.

CLASS SCHEDULE — A schedule of classes is available each quarter from the Office of Registration.

ACCOUNTING

The master of science (accounting) degree can be obtained in either of two programs offered by the College of Business Administration. Students, normally graduates in business, who have completed 12 to 15 quarter hours of accounting at the undergraduate level may be accepted in a program of specialization in accounting to be completed in one academic year. The other program is open to students who have had only six quarter hours of accounting. This program, designed for nonbusiness graduates and for nonaccounting business graduates, concentrates the required courses in a 15-month program starting in the summer quarter of every year and continuing through five quarters.

The requirements for the MS (accounting) degree will vary depending on the background of the student and his particular interests. In general it will be necessary to take 24 hours of the required 45 quarter hours in graduate accounting subjects. Other advanced courses in finance, economics, business administration and management will be selected by the student with the approval of his adviser.

501 Accounting Principles (4)

Intensive over-view of accounting theory, practice and statement preparation.

502 Accounting Principles (4)

Prereq: 501. Continuation of 501. See 501 for description.

503 Accounting Principles and Procedures (4)

Fundamental accounting principles and practices emphasizing data accumulation using accounting techniques. Primarily intended for those specializing in accounting.

504 Intermediate Accounting (4)

Preparation and analysis of accounting statements; special problems in accounting for current, fixed and intangible assets, for liabilities and for corporate worth; funds and reserves and investments.

505 Intermediate Accounting (4)

Continuation of 504. See 504 for description.

506 Advanced Accounting (4)

Mergers, consolidations and advanced theory.

507 Advanced Accounting (4)

Investigation of current topics.

510 Cost Accounting (4)

Specialized problems of cost accumulation and analysis of manufacturing corporations. Emphasizes costs for making management decisions.

517 Tax Accounting (4)

Federal income tax problems of importance to professional accountant.

540 Advanced Cost Accounting (4)

Prereq: 510. Analysis of relevant costs for decision-making including non-manufacturing costs. Current cost accounting topics.

547 Advanced Federal Income Taxes (3)

Advanced tax problems of individuals, partnerships and corporations including tax planning and administration.

551 Auditing Principles and Practice (4)

Purposes and scope of audits and examinations; audit principles and procedure; audit reports and certificates.

601 Accounting Theory (4)

Development of accounting theory historically, current developments and literature in theory area

602 Accounting Data Accumulation and Analysis (4)

Accounting systems with particular relations to computerized data processing and techniques in quantitative analysis of accounting data

603 Controllership (4)

Problems and policy-forming decisions of controllership function which comprise fields of general accounting, internal control, budgeting, taxes, cost control and financial reporting.

620 Advanced Accounting Problems (4)

Analysis, interpretation and solutions of complex accounting problems of type appearing in official CPA examinations.

630 Organization Planning and Control (4)

Prereq: 501, 502, Fin 525. Planning and control of organizations through internal and external quantitative information, emphasizing techniques and theory of accounting and finance.

691 Seminar (3-5)

693 Readings (1-15)

695 Thesis (1-15)

697 Independent Research (1-15)

698 Internship (1-15)

3 months of accounting work experience, preferably in a public accounting firm. Requirements include written and oral reports analyzing work experience and academic preparation for professional practice.

699 Research (3-5)

AFRICAN STUDIES

(See International Affairs)

ANTHROPOLOGY

No graduate program in anthropology is offered.

(If a student has taken 270, Basic Concepts, and 351, Ethnology, or their equivalent, the prerequisite of 571, Ethnology, may be waived by the instructor.)

550 Economic Anthropology (5)

Prereq: 571 and perm. Survey of economic arrangements found in various types of cultural systems with emphasis on application of anthropological theory and method for understanding particular systems.

551 Political Anthropology (5)

Prereq: 571 and perm. Cross-cultural survey of political arrangements with emphasis on application of anthropological method and theory to political problems.

552 Paleoethnology (5)

Prereq: 270, 571 and perm. Introduction to the "new archaeology" in which goals, theory and method are directed toward reconstruction of extinct socio-cultural systems rather than toward time-space distribution of archaeological materials.

557 Anthropology of Religion (5)

Prereq: 571 and perm. Survey of various aspects of religion in their cultural setting with emphasis on use of anthropological theories for an objective understanding of religion.

558 Women: A Cross-Cultural Survey (5)
 Prereq: 571 and perm. Cross-cultural survey of life conditions of women with emphasis on factors determining role and status of women in various types of cultures.

566 Cultures of the Americas (5)
 Prereq: 571 and perm. Survey of cultural diversity present in South, North or Meso-America with emphasis on application of anthropological method and theory to understanding of particular socio-cultural systems.

571 Ethnology (5)
 Prereq: perm. Cross-cultural survey of structure and process in various cultures, including consideration of kinship, economics, politics and ideology. (Replaces Anth 371.)

575 Culture and Personality (5)
 Prereq: 571 or perm. Interrelations between personality systems and cultural systems.

576 Culture Contact and Change (5)
 Prereq: 571 and perm. Impacts of cultures upon one another: immediate and subsequent cultural adaptations.

577 Peasant Communities (5)
 Prereq: perm. Focuses upon folk component of preindustrial civilized states as preserved into recent and contemporary times.

578 Cultural Ecology (5)
 Prereq: 571 and perm. Analysis of mutual and reciprocal relations between socio-cultural systems and other systems in their environment; ecosystems and biotic communities in which human populations are included.

581 Cultures of Sub-Saharan Africa (5)
 Prereq: 571 and perm. Survey of cultural diversity in Sub-Saharan Africa with emphasis on application of anthropological theory and method to understanding of particular socio-cultural systems.

582 Prehistory of Europe (5)
 Prereq: 571 and perm. Archaeological material of European cultures from Neolithic to early Middle Ages, principles of excavation, problems of analysis and research.

585 Cultures of Southeast Asia (5)
 Prereq: 571 and perm. Survey of cultural systems of island and mainland Southeast Asia.

586 Problems in Southeast Asian Anthropology (5)
 Prereq: 571, 585 and perm. Selected topics of current theoretical concern relating to Southeast Asia.

587 Cultures of Oceania (5)
 Prereq: 571 and perm. Anthropological survey of Melanesia, Polynesia and Micronesia.

588 Cultures of the Middle East (5)
 Prereq: 270. Examination of traditional cultures of Middle East (nomad, village and urban) with emphasis on cultural adaptation to arid lands, Islamic institutions and culture change under impact of western society.

591 Primate Social Organization (5)
 Prereq: perm. Introduction to primate ethology, with reference to development of human cultural behavior.

592 Human Evolution (5)
 Prereq: perm. Basic principles of synthetic theory of evolution, development of mammals and evolution of primates, with emphasis on Pongidae and Hominidae.

594 Seminar in Anthropology (4-6)
 Prereq: perm. Selected topics in anthropology.

596 Human Diversity (5)
 Prereq: 270, 492 and perm. Population genetics of human variation emphasized, particularly basic Mendelian concepts, anthropometric variation and raciation.

599 Readings in Anthropology (1-3, max 8)
 Prereq: 8 hrs and perm. Supervised readings in various fields of anthropology: archaeology, ethnology, linguistics, physical anthropology.

ARCHITECTURE

The master of architecture degree is directed toward providing professional and research education to prepare the student for his role in the professional practice of architecture. In addition, concentration in areas of related interest such as architectural history and theory, urban design and architectural management may be pursued.

The normal MArch program at Ohio University is a combined undergraduate and graduate six-year program leading to the degrees of bachelor of arts in architecture and master of architecture. Students holding a four-year BS or BA degree normally will be required to take a minimum of four years of residence coursework. Students holding a five-year BArch degree from a school accredited by the National Architecture Accrediting Board may be admitted with advanced standing.

501 Advanced Architectural Design I (6)
 Prereq: perm. Design studio in which architectural design problems are assigned to provide advanced study of individual and group building organization, site planning, building technologies and architectural graphics.

502 Advanced Architectural Design I (6)
 Prereq: 501. Continuation of 501. See 501 for description.

503 Advanced Architectural Design I (6)
 Prereq: 502. Continuation of 501-502. See 501 for description.

541 Seminar in Visual Perception (3)
 Prereq: perm. Perceptual theory involving experimental multi-media studies in environmental design.

551 Seminar in Architectural Theory (3)
 Prereq: perm. Issues and ideas in architectural history, such as cultural phenomenon of Classicism, Romanticism, Expressionism and Functionalism and their implications for architecture of the past and future.

552 Seminar in Architectural Theory (3)
 Prereq: 551. Continuation of 551. See 551 for description.

553 Issues in History of Architecture (3)
 Prereq: 552. Continuation of 551-552. See 551 for description.

561 Seminar in Advanced Structures (3)
 Prereq: perm. In-depth investigation of indeterminate structures and contemporary complex structure systems such as shells, membranes, space frames, etc. Emphasis on total understanding of behavior of structures.

562 Seminar in Advanced Structures (3)
 Prereq: 561. Continuation of 561. See 561 for description.

563 Seminar in Advanced Structures (3)
 Prereq: 562. Continuation of 561-562. See 561 for description.

582 Seminar in Professional Practice (3)
Prereq: perm. Techniques and responsibilities of professional practice.

595 Directed Research II (1-12)
Prereq: perm. Supervised group or individual research study in architecture and related fields.

601 Design Studio and Independent Project (9)
Prereq: 503. Research subjects involving comprehensive analysis, investigation and solution proposals for pragmatic or theoretical subjects. Advanced building site or planning design problems.

602 Design Studio and Independent Project (9)
Prereq: 601. Continuation of 601. See 601 for description.

603 Design Studio and Independent Project (9)
Prereq: 602. Continuation of 601-602. See 601 for description.

651 Seminar in Architectural History Research (3)

Prereq: perm. (fall). Advanced research in history of architecture in area of student's interest. Includes study of major architectural movements, individual architects or individual building types.

652 Architectural Esthetics (3)

Prereq: perm. (winter). Analytical study of historical and contemporary applications of esthetic values and esthetic experience of architecture.

653 Principles of Architectural Criticism (3)
Prereq: perm. (spring). Use of critical analysis and its application to contemporary architectural design. Arranged according to student's interest.

661 Seminar in Advanced Structures (3)
Prereq: 563. Philosophy of structures; creation of an intuitive feeling for structure as a design determinant; analysis of complex structures. Aims are consideration of architecture and structure as one and development of creative structural design in architecture.

662 Seminar in Advanced Structures (3)
Prereq: 661. Continuation of 661. See 661 for description.

663 Seminar in Advanced Structures (3)

Prereq: 662. Continuation of 661-662. See 661 for description.

671 Seminar in Advanced Planning Theory (3)
Nature of cities and urban regions, ways of dealing with urban dynamics and functional interrelationships among cities, suburbs and countryside.

672 Seminar in Advanced Planning Theory (3)
Prereq: 671. Continuation of 671. See 671 for description.

673 Seminar in Advanced Planning Theory (3)
Prereq: 672. Continuation of 671-672. See 671 for description.

695 Graduate Thesis (1-12)

Prereq: perm. (fall, winter, spring, summer as recommended by dept)

ART

The graduate program leading to a master of fine arts degree with a major in ceramics, painting, printmaking or sculpture involves the completion of at least 90 quarter hours of graduate work (54 hours at 500 and 600 level and 36 hours at 700 and 800 level) including 12 hours of art history and 10 hours of studio thesis.

The master of arts degree in art education involves the completion of 45 quarter hours of graduate work consisting of 12 art history hours;

12 art education hours for students with a teaching certificate. A cooperative arrangement with the College of Education makes it possible for uncertified candidates to earn a teaching certificate and the master of arts simultaneously. Students seeking certification at the graduate level must have completed an undergraduate major in a studio area (painting, printmaking, ceramics, sculpture, crafts) and have earned a 3.0 undergraduate accumulative average. Graduate certification programs are individually designed.

The student must submit a portfolio and three letters of recommendation to the director of the School of Art at the time of application for admission.

505 Painting (3-6)

506 Painting (3-6)

Prereq: 505.

515 Ceramics (3-6)

516 Ceramics (3-6)

Prereq: 515.

518 Glass (3)

Continuation of glassblowing and introduction to glasscasting and production techniques.

519 Glass (3)

Prereq: 518. Continuation of 518. See 518 for description.

531 Sculpture (3-6)

532 Sculpture (3-6)

Prereq: 531.

541 Printmaking (3-6)

542 Printmaking (3-6)

Prereq: 541.

560 Studies in Art Education (3)

Critical study of historical and contemporary philosophy and investigation into related research. Individual planning for research projects.

561 Research in Art Education (3)

Prereq: 560. Original research under direction of adviser.

562 Research in Art Education (3)

Prereq: 561. Continuation of 561. See 561 for description.

563 Proseminar in Art Education (3)

Presentation and evaluation of student research projects.

605 Painting (3-6)

Prereq: 506.

606 Painting (3-6)

Prereq: 605.

615 Ceramics (3-6)

Prereq: 516.

616 Ceramics (3-6)

Prereq: 615.

631 Sculpture (3-6)

Prereq: 532.

632 Sculpture (3-6)

Prereq: 631.

641 Printmaking (3-6)

Prereq: 542.

642 Printmaking (3-6)

Prereq: 641.

705 Painting (3-6)

Prereq: 606.

706 Painting (3-6)
Prereq: 705.

715 Ceramics (3-6)
Prereq: 616.

716 Ceramics (3-6)
Prereq: 715.

731 Sculpture (3-6)
Prereq: 632.

732 Sculpture (3-6)
Prereq: 731.

741 Printmaking (3-6)
Prereq: 642.

742 Printmaking (3-6)
Prereq: 741.

780 Individual Problems (1-6)

781 Individual Reading (1-3)

805 Painting Written Thesis (2-6)

806 Painting Studio Thesis (5-10)

815 Ceramics Written Thesis (2-6)

816 Ceramics Studio Thesis (5-10)

831 Sculpture Written Thesis (2-6)

832 Sculpture Studio Thesis (5-10)

840 Prints Written Thesis (2-6)

841 Prints Studio Thesis (5-10)

552 Multiple Images (5)
Continuation of 551. See 551 for description.

553 Multiple Images (5)
Continuation of 551 and 552. See 551 for description.

577 Combined Applications (5)
Fundamentals of portraiture. 2 lec, 6 lab.

578 Combined Applications (5)
Fundamentals of advertising and commercial work. 2 lec, 6 lab.

579 Combined Applications (5)
Fundamentals of architectural renditions and industrial. 2 lec, 6 lab.

580 Independent Technical Research (2-5)
Prereq: perm. Selected research with periodic and terminal reports. Max of 10 hrs allowed for 580, 581, 582 series.

581 Independent Technical Research (2-5)
Prereq: perm. Continuation of 580. See 580 for description.

582 Independent Technical Research (2-5)
Prereq: perm. Continuation of 580 and 581. See 580 for description.

583 Independent Technical Readings (2-5)
Prereq: perm. Selected readings culminating in a scholarly paper. Max of 10 hrs allowed for 583, 584, 585 series.

584 Independent Technical Readings (2-5)
Prereq: perm. Continuation of 583. See 583 for description.

585 Independent Technical Readings (2-5)
Prereq: perm. Continuation of 583 and 584. See 583 for description.

591 Color Materials and Methods (5) *
Theory of color; practice with transparency materials; color negatives, direct separations, separations from transparencies, masking and color printing methods. 1 lec, 8 lab. Total of 10 hrs required in 591, 592, 593 series.

592 Color Materials and Methods (5) *
Continuation of 591. See 591 for description.

593 Color Materials and Methods (5)
Continuation of 591 and 592. See 591 for description.

678 Graduate Study in Photographic Arts (5-10)
Individual practice under instructor's supervision. Max of 10 hrs allowed from 678, 679, 680 series.

679 Graduate Study in Photographic Arts (5-10)
Continuation of 678. See 678 for description.

680 Graduate Study in Photographic Arts (5-10)
Continuation of 678 and 679. See 678 for description.

778 Advanced Study in Photographic Arts (5-10)
Prereq: 10 hrs in 678-679 or 680. Individual practice under instructor's supervision. Max of 15 hrs allowed from 778, 779, 780 series.

779 Advanced Study in Photographic Arts (5-10)
Prereq: 10 hrs in 678-679 or 680. Continuation of 778. See 778 for description.

780 Advanced Study in Photographic Arts (5-10)
Prereq: 10 hrs in 678-679 or 680. Continuation of 778 and 779. See 778 for description.

890 Written Thesis (6)
Prereq: perm.

894 Studio Thesis Required (10)
Prereq: perm. Coherent body of work evolving from an original idea of the candidate, prepared and carried out during 5th qtr of study for presentation in the 6th qtr and demonstrating his growth as a graduate student.

ART, PHOTOGRAPHY

Two graduate degrees in photography are offered:

The master of arts program is advanced work in the applications of photography. The degree entails 60 quarter hours of courses (approximately four quarters) drawn from the 500 level including the four required courses (*bearing asterisks*) and concluding with a portfolio of work to be presented to the department during the last quarter of study.

The master of fine arts program is designed for applicants in an art program. The degree entails 90 quarter hours (approximately six quarters) as follows: 20 hours of the four required courses at the 500 level, 30 hours from the 600-800 level graduate electives, 20 hours of art history, ten hours of studio thesis and ten hours of nonphotographic graduate studio art.

The student must submit a portfolio and three letters of recommendation to the director of the School of Art at the time of application for admission.

505 Photographic Processes (5) *
Intensive study of black and white materials and their creative uses. 2 lec, 6 lab. A total of 10 hrs is required from 505, 506, 507 series.

506 Photographic Processes (5) *
Continuation of 505. See 505 for description.

507 Photographic Processes (5)
Continuation of 505 and 506. See 505 for description.

551 Multiple Images (5)
Camera reporting and documentaries; essays and picture stories; book layout; experimental work with multiple images for any desired single or accumulative effect. 2 lec, 6 lab.

ART HISTORY

The graduate program leading to a master of fine arts degree in art history involves the completion of at least 90 quarter hours of graduate work including the major sequence in art history, studio minor and ten hours written thesis.

The student must submit three letters of recommendation to the director of the School of Art at the time of application for admission. Proof of reading competence in French or German is also required.

520 Greek Art (4)

Specific developments in period between Minoan/Hellenic cultures and those of Alexandrian Empire.

521 Roman Art (4)

Motifs and concepts ranging from Etruscan artifacts through Hellenistic to advent of Constantine.

522 Medieval Art (4)

Painting and sculpture from time of Constantine to Giotto.

523 Italian Renaissance Art (4)

Monuments, motifs and their implications in Quattrocento Italy.

524 Northern Renaissance Art (4)

Arts of northern Europe to 1530.

525 Art of High Renaissance and Mannerism (4)

Art and theory of the Cinquecento.

526 Baroque and Rococo Art (4)

Paintings and sculpture of 17th and 18th centuries.

527 Art of 19th Century (4)

Arts and their development during and after Industrial Revolution.

528 Modern Art (4)

Specific movements and artists since 1900.

529 The Arts of the United States (4)

Specific problems and their patterns from Colonial era.

530 The Arts of the Orient (4)

Selected studies in arts of India, China and Japan.

531 Pre-Columbian Art (4)

Arts of early Mexico, Middle and South America.

532 African Art (4)

Artifacts of tribes of Niger and Congo Basins and their relationships.

533 Near Eastern Art (4)

Motifs and monuments of Egypt, Mesopotamia, Assyria and Babylonia.

537 History of Photography (4)

History and development of photography as art, science and industry. Leading photographers and their contributions to development of the art.

538 History of Photography (4)

Continuation of 537. See 537 for description.

539 History of Photography (4)

Continuation of 537 and 538. See 537 for description.

540 Art and Ideas in Painting (4)

550 Seminar in Art History (3)

(Offered on demand.) Intensive study of projects of limited scope.

560 Art Historiography (4)

780 Individual Problems (1-6)

781 Individual Reading (1-3)

800 Art History Thesis (1-15)

AUDIOLOGY

(See Hearing and Speech Sciences)

BACTERIOLOGY

(See Zoology and Microbiology)

BIOLOGY

(See Botany or Zoology)

BOTANY

Doctor of philosophy and master of science degree programs are offered in the following areas of specialization: biochemistry, cell biology, ecology, morphology, mycology, paleobotany, physiology, pteridology and systematics.

To begin graduate study the student must have at least 24 quarter hours, or the equivalent, of botany and (or) related biological sciences. Applicants also must have completed calculus, inorganic chemistry and physics. Deficiencies in undergraduate preparation may be eliminated during the course of graduate study. Scores from both the aptitude and biology advanced tests of the Graduate Record Examination are required. Foreign applicants whose native language is not English must submit scores from either the English Test of the University of Michigan English Language Institute, Ann Arbor, Michigan or the Test of English as a Foreign Language (TOEFL) as an evaluation of English proficiency.

Organic chemistry is required for completion of graduate degrees. Coursework in biochemistry and proficiency in one foreign language (French, German, Russian or other, depending on research needs) are required for the PhD degree. All graduate students in botany are required to teach a minimum of two quarters during their tenure in the department. A research thesis (MS) or dissertation (PhD) resulting from original research is required.

604 Plant Physiology (5)

Prereq: organic chemistry. (winter). Critical examination of experimental basis of plant physiology. Topics include: water relations; uptake and transport of ions and non-ionic compounds; plant growth regulators and their roles in growth and development; and carbon, nitrogen and sulfur metabolism in plants.

625 Plant Autecology (5)

Prereq: perm. (spring). Environmental factor effects on species growth and distribution; review of recent autecological literature. 3 lec, 4 lab, 1 Saturday field trip.

626 Plant Syncology (5)

Prereq: perm. (fall). Natural plant communities and readings in literature of community ecology. 3 lec, 4 lab, 1 Saturday field trip.

633 Paleobotany (5)

Prereq: perm. (spring). Morphology, evolution and stratigraphic position of representative fossil plant groups. Field trips.

640 Molecular Genetics (4)

Prereq: perm. (alternate winter). Fine structure of gene, biochemistry of gene action, cytoplasmic inheritance. 4 lec.

650 Instrumentation and Techniques (5-10)

(fall). Instruments and techniques used in solution of contemporary biological research problems. Theoretical and practical aspects included. 5 lec.

654 Phycology (5)

Prereq: perm. (alternate spring). Identification, classification, ecology and geographic distribution of fresh-water algal species and communities, with emphasis on phytoplankton and limnological relationships. 3 lec, 4 lab.

655 Biology of Fungi (5)

Prereq: perm. (fall). Life history, morphology, classification, cytology and physiology, including collection, isolation and culture of selected fungi. 3 lec, 2 2-hr lab.

695 Thesis (1-15)

Prereq: perm. Formal presentation of results of research as partial fulfillment of requirements for MS degree. Hrs not counted toward degree.

732 Advanced Cytology (5)

Prereq: perm. (spring). Biochemical, cytochemical and ultrastructural aspects of cytoplasmic organelles, mitosis, meiosis and cellular differentiation.

751 Plant Biochemistry (5)

Prereq: perm. (alternate spring). Critical examination of current biochemical literature. Topics include: isolation, purification and chemistry of proteins; properties and mechanisms of action of enzymes; principles governing biochemical reactions and regulation of reactions and reaction sequences in bacteria and plants.

752 Topics in Cell Biology (2-5)

Prereq: perm. (winter). Advanced discussion courses offered when there is sufficient student interest in a significant current topic. Courses offered in the past and possible future courses include:

752A—Plant Cytology. Structure and function of cytoplasmic organelles; mitosis and meiosis in relation to development.

752B—Cell Division and Differentiation. Discussion of recent literature concerning cell cycle and how cell cycle relates to differentiation within organisms.

752C—Ultrastructure. Techniques for studying and organizing of submicroscopic biological structures.

753 Developmental Physiology (5)

Prereq: perm. (alternate spring). Advanced physiology lecture course. Growth and developmental phenomena with special emphasis on flowering plants. Topics include cell growth and differentiation in developing meristems; tissue and organ development and culture; dormancy and germination; flower induction; seed formation; hormones; senescence; plant movements; phytochrome; salt stress and holocoenotic effects of environment on morphogenesis.

754 Experimental Ecology (5)

Prereq: 625, 626 or perm. (alternate winter). Theory and methods involved in studying natural plant communities. 3 lec.

757 Phytogeography (5)

Prereq: perm. (alternate winter). Theories and principles of plant distribution as related to evolution, migration and speciation of plants. 3 lec.

758 Advanced Taxonomy (6)

Prereq: perm. (fall). Floristic and experimental approaches, evolutionary processes and patterns, research tools and literature basis to classification in flowering plants. Emphasis in laboratory work on methods and practice in determining relationships between natural populations of plants at infrageneric level. 2 lec, 4 lab.

759 Topics in Fungi (2-6)

Prereq: perm. (winter). Advanced discussion courses offered when there is sufficient student interest in a significant current topic. Courses offered in the past and possible future courses include:

759A—Aquatic Phycomycetes. Collection, isolation, culture, morphology, taxonomy and life histories of aquatic fungi with swimming spores.

759B—Ascomycetes. Selected aspects of morphology, taxonomy, reproduction and morphogenesis of Ascomycetes.

759C—Cellular Slime Molds. Isolation, cultivation and study of variety of species; review of literature in all areas of research.

780 Advanced Topics in Botany (2-6)

Prereq: perm. Advanced discussion courses offered when there is sufficient student interest in a significant current topic. Courses offered in the past and possible future courses include:

780A—Histochemistry

780B—Advanced Biochemistry

780C—Vascular Morphology

780D—Plant Physiology

780E—Radiation Biology

780F—Botanical Pedagogy

780G—Supervised Study

791 Seminar (1)

Graduate student, faculty and guest seminar speakers.

795 Research (1-15)

Prereq: perm. Original research in field of major interest under supervision of student's major adviser. Results and conclusions resulting from research may be presented in MS thesis or PhD dissertation as partial fulfillment for respective degrees.

895 Dissertation (1-15)

Prereq: perm. Scholarly account of original research in major area of interest as partial fulfillment of requirements for PhD degree.

BUSINESS ADMINISTRATION

The master of business administration program is designed to enable the student to attain an integrated comprehension of business and industrial organizations and the administrative process, largely from a decision-making point of view. Accordingly, it seeks to provide a basic foundation in the functional areas of business, a background in concepts and techniques useful to the manager, exposure in depth to one or more major dimensions of the enterprise and additional coverage of pertinent subjects of interest to the individual.

The MBA program consists of 24 courses divided into phases. Any or all of the 12 business foundation courses in the first phase may be waived on the basis of undergraduate preparation, some on the basis of examination. These first-phase courses are Principles of Economics I and II, Accounting Principles I and II, Legal Environment of Business, Business Finance, Management, Production, Elements of Marketing, Mathematical Economics Foundations, Statistical Foundations and Computer Foundations.

All MBA candidates must take 45 quarter hours in the second phase. These include six core courses, three courses in the area of concentration and nine hours of elective courses. Possible areas of concentration are accounting, economics, finance, management and organizational behavior, marketing and quantitative methods. Electives

may be taken in any field, within or outside the College of Business Administration.

A thesis is not required for the MBA degree, but may be elected.

As part of the admissions procedure all applicants must submit three letters of recommendation and a score for the Admission Test for Graduate Study in Business (A.T.G.S.B.), administered by Educational Testing Service, Princeton, New Jersey 08540. In addition, applicants from countries where English is not the native language must also submit a score for the English Language Test of the English Language Institute, University of Michigan, Ann Arbor, Michigan; or the Test of English as a Foreign Language (TOEFL).

510 Production Management (4)

Emphasis on organization of production function and its relationship to other management functional activities.

511 Production Planning and Control (4)

Quantitative techniques used in premanufacturing and control phases of production function.

512 Production Management Problems (4)

Case studies of production problems in various industries.

531 Administration of Information Systems (4)

Information networks and flows in organizations within total systems framework.

545 Small Business Administration (4)

Place of small business organizations in our society; need for organizations in certain segments of business society; problems faced, opportunities involved and competitive considerations.

555 Studies in Business History (4)

Case studies of American businessmen and firms since early colonial period, with emphasis on 20th century. Lessons from past examined in relation to present sound business policy.

560 Future of Information Management (4)

Planning and implementing change in information systems. 10-yr look ahead for administrators. Information management changes required for decision making in both profit-centered and service-centered organizations.

565 Technology and the Environment (4)

Prereq: perm. There is everywhere a great concern for things to come. Real problem is not just to predict the future but how to anticipate, control and change it. Course is conceptual, future-oriented and interdisciplinary. Variety of developmental problems and interaction of many technological environments including social, political, economic, marketing, as well as technical.

580 Ethics and Morality in Business (4)

Combined moral philosophy and personal responsibilities in actual business and administrative case decisions demanding critical analysis of contextual situation where provisional resolutions must be indirectly charted between ethical oughts and economic musts.

585 International Comparative Administration (4)

Survey and analysis of similarities and differences in management systems, processes and styles, as well as evaluation of changes and their impact in selected groups of countries.

670 Business Policy (4)

Top management view of decision making affecting future operations of a business, and opportunities, risks and responsibilities accompanying formulation of company policy and strategy.

671 Production Theory and Systems (4)

Quantitative models and readings in networks, programming, forecasting, inventory policy, production control and individual dynamics.

672 Advanced Production Problems (4)

Case studies in industries designed to apply all phases of student's training and experience.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with a faculty member.

695 Thesis (1-15)

697 Independent Research (1-15)

Research in selected fields under direction of a faculty member.

698 Internship (1-15)

BUSINESS AND INDUSTRIAL COMMUNICATIONS

To begin work in this area, the student must have completed basic courses satisfactory to the department and have permission from the instructor for a specific course.

510 Management of Communications (4)

Communication channels and media used by a firm in relationships with employees, customers, the public and others.

520 Communication Systems (3)

Application of communication subject matter to specific organizational situations. Emphasis on problem-solving, goal-oriented function of communication. Written cases.

530 Information Management (4)

Information networks and flows in organizations within a total-systems framework. (Same as Mgt 530).

620 Business Research (4)

Communication theory research methodology, analysis of data and preparation of written reports.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with a faculty member.

695 Thesis (1-15)

697 Independent Research (1-15)

Research in selected fields under direction of a faculty member.

698 Internship (1-15)

BUSINESS LAW

(Minor area only)

500 Law and Society (4)

Conceptual approach to origin, nature, structure, functions and procedures of law with study of contractual relationships.

542 Law of Property (4)

Property law as an institution and analysis of creation, transfer and relation of various legal interests in property, especially land.

562 Law of Estates and Trusts (4)

Law as it pertains to decedents' estates including law of wills, intestate succession and trusts.

570 Environmental Law (4)

Prereq: 355. Legal aspects of individual and societal environmental rights and duties with respect to Constitution, private property, nuisance, negligence, statutes, regulatory agencies and court decisions.

575 Government and Business (4)

Governmental regulatory environment of business including analysis of statutes, court decisions and rulings affecting policy decisions.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with a faculty member.

695 Thesis (1-15)**697 Independent Research (1-15)**

Research in selected fields under direction of a faculty member.

698 Internship (1-15)**CHEMICAL ENGINEERING**

(See Engineering, Chemical)

CHEMISTRY

To begin graduate work in chemistry the student should have completed a year's work in analytical chemistry, organic chemistry, physical chemistry, calculus and physics.

Students beginning graduate work in chemistry are required to take entrance examinations covering inorganic, analytical, organic and physical chemistry. These examinations are administered during a special series of orientation sessions during the period prior to the opening of the academic year. The results are considered in planning the student's graduate program.

All degree programs must include research and teaching experience.

500 Qualitative Organic Analysis (5)

Prereq: perm. (spring). Separation and identification of organic compounds. 3 lec, 6 lab.

501 Organic Chemistry Survey (4)**520 Chemical Literature (3)**

Prereq: reading knowledge of German. Chemical literature in journals, handbooks, monographs and patents. Scientific writing.

550 Principles of Quantum Chemistry (3)

Prereq: perm. Introduction to solution of problems concerning molecular structure and spectroscopy in terms of quantum theory.

551 Physical Chemistry (4)

Prereq: perm. (fall). For graduate students *not* majoring in chemistry. Includes thermodynamics, thermochemistry, equilibrium, solutions, electrochemistry and kinetics.

553 Physical Chemistry (3)

Calculus-based introduction to behavior of gases, liquids and solids including kinetic theory of gases and crystallography of solids. (Not open to undergraduate chemistry majors.)

554 Physical Chemistry (3)

Prereq: 553. Continuation of 553. Laws of chemical thermodynamics and their application to chemical systems at and approaching equilibrium. (Not open to undergraduate chemistry majors.)

555 Physical Chemistry (3)

Prereq: 554. Continuation of 554. Study of multi-component phase equilibria, solution thermodynamics, electrochemistry and reaction rates and mechanisms. (Not open to undergraduate chemistry majors.)

558 Chemical Thermodynamics (3)

Prereq: perm. Concepts of energy and entropy and their use in predicting the feasibility and extent of chemical reactions.

560 Spectroscopic Methods in Organic Chemistry (3)

Prereq: perm. Modern spectroscopic methods as employed in organic chemical research: NMR, IR, UV, ESR and mass spectrometry.

576 Modern Inorganic Chemistry (4)

(fall). Relationship between physical and chemical properties of inorganic substances and nature of bonding and structures involved.

577 Synthetic Methods of Inorganic Chemistry (2-3)

Prereq: 576. Theoretical principles and practices of synthesis, purification and characterization of inorganic substances. 1 lec, 3-6 lab.

579 Radiochemistry (4)

Prereq: perm. Application of radiation and radioactive isotopes to problems in chemistry and environmental sciences; detection and determination of radiation; safe handling and disposal of radioactive materials and other problems in environmental radiation safety.

580 Advanced Organic Chemistry (4)

Deals primarily with stereochemistry and reaction mechanisms.

584 Electrochemical Methods of Analysis (5)

Prereq: 551 or 553. Modern electrochemical techniques and instrumentation with emphasis on their applications in analytical chemistry. Topics include introduction to electronic circuits and operational amplifiers, potentiometry, specific ion electrodes, DC and AC polarography, pulse polarography, coulometry, chronocoulometry, cyclic voltammetry and rapid scan voltammetry.

585 Spectrochemical Methods of Analysis (5)

Prereq: 551 or 553. Survey of spectrochemical instrumentation with emphasis on their operation and application in analytical chemistry. Topics include atomic absorption, atomic emission, molecular absorption and molecular emission and will cover emission-absorption phenomena in X-ray, ultraviolet, visible and infrared regions of electromagnetic spectrum.

586 Advanced Analytical Chemistry (4)

Fundamental principles of analytical chemistry. Rigorous treatment of equilibrium in aqueous and nonaqueous systems, precipitate formation, electrochemistry, stoichiometry and volumetric methods of analysis.

588 Chemical Instrumentation (4)

Prereq: perm. Fundamentals of electronics, emphasizing circuitry in modern chemical instruments. 3 lec, 3 lab.

590 Introduction to Biochemistry (3)

Prereq: perm. (fall). Structure and function of major biological macromolecules.

591 Introduction to Biochemistry (3)
Prereq: 590. (winter). Biological energy production and metabolism.

592 Introduction to Biochemistry (3)
Prereq: 591. (spring). Study of integrated molecular systems in biology.

695 Research and Thesis (as recommended by dept.).

700 Research Techniques (3)
Prereq: perm. Important skills and techniques of chemical research including glassblowing, vacuum techniques, separation methods, etc.

701 Advanced Organic Chemistry (3)
Prereq: 580. Organic syntheses.

702 Advanced Organic Chemistry (3)
Prereq: 701. Theoretical aspects of organic chemistry.

703 Physical Organic Chemistry (3)
Prereq: 702. Application of modern concepts to structure and reactivity in organic reactions of various mechanistic classes.

704 Heterocyclic Chemistry (3)
Prereq: 702. Theoretical and synthetic aspects.

705 Organometallic Chemistry (3)
Prereq: 576. (alternate years). Structure and reactivity of organometallic compounds.

706 Natural Products Chemistry (3)
Prereq: 702. Terpenes, steroids, alkaloids and other natural products.

710 Special Topics in Organic Chemistry (3)
Prereq: 702. Selected topics of current interest.

716 Advanced Biochemistry (3)
Selected topics of current interest in biochemistry. (A) Physical biochemistry; (B) Eucaryote transcription; (C) Membrane biochemistry; (D) Molecular genetics; (E) Macromolecular assembly.

726 Electroanalytical Chemistry (4)
Prereq: 584. (alternate years). Fundamentals and applications of potentiometry, conductometric titrations, enulometry, voltammetry, amperometric titrations, cyclic voltammetry, chromocoulometry. 3 lec, 3 lab.

727 Spectrochemical Analysis (4)
Prereq: 585. (alternate years). Fundamentals and analytical applications of atomic absorption and emission and molecular absorption and emission. 3 lec, 3 lab.

730 Special Topics in Analytical Chemistry (3-5)
Selected topics of current interest: electronics, optical rotatory dispersion, circular dichroism, Fourier transform spectroscopy, photoelectron spectroscopy, chemical ionization mass spectrometry.

750 Chemical Thermodynamics (3)
(winter). Application of thermodynamics to mixtures and solutions to take account of solvent-solute interaction and ionic effects.

751 Statistical Thermodynamics (3)
Prereq: 558 or perm. (winter). Derivation of thermodynamic principles and data from knowledge of size and shape of molecules and the laws of mechanics.

753 Chemical Applications of Group Theory (4)
(alternate summers). Develops foundation for application of elementary group theory to organize or simplify problems in quantum chemistry. Applications include molecular orbitals, molecular vibrations and ligand field environments.

754 Chemical Quantum Mechanics (3)
Prereq: 550. Perturbation and variation theory with application to quantum chemistry; angular momentum; electron spin; atomic structure. Some matrix theory.

755 Special Topics in Quantum Chemistry (3)
Prereq: 550. Compares various current approaches to molecular orbital calculations in quantum chemistry. Course varies in alternate years: ligand field theory or Hartree-Fock-Roothan molecular orbital theory (either *ab initio* or semiempirical).

756 Solutions (3)
Selected topics in solution thermodynamics such as stoichiometry, determination of equilibrium constants, activity coefficients and other thermodynamic properties of solutions; theories of electrolytes; electrochemistry, and transport phenomena.

757 Chemical Kinetics (3)
Experimental methods of obtaining reaction rates, interpretation of rate data and relationships between mechanism of reactions and rate equations of reactions.

758 Crystallography (3-4)
Point and space groups; x-ray spectra; diffraction phenomena; reciprocal lattice; powder, precession, Weissenberg and counter methods of recording spectra; crystal structure determination.

759 Solid State Chemistry (4)
Prereq: 550. Geometrical crystallography and structure of crystals; imperfections and mechanical properties; crystal growth; phase diagrams; electrical, optical, thermal and magnetic properties of solids; diffusion and solid state reactions.

760 Magnetochemistry (3)
Examination, analysis and formulation of selected magnetic phenomena, including magnetic susceptibility, magnetic materials, magnetic resonance and magnetothermodynamics.

761 Molecular Structure I (3)
Prereq: 550. Theoretical principles of rotational, vibrational and electronic spectra of diatomic and polyatomic molecules.

762 Molecular Structure II (3)
Prereq: 550. Theoretical principles of nuclear magnetic resonance and electron spin resonance spectroscopy.

763 Radiation and Photochemistry (3)
Comparison of radiation and photochemical reactions; primary and secondary processes; general treatment of free radical mechanisms; isolation and detection of free radicals; radiation dosimetry; chemical and biological effects of radiation.

764 Special Topics in Physical Chemistry (2-3)

775 Theoretical Inorganic Chemistry (3)
Prereq: 550, 576. Theoretical principles underlying physical and chemical behavior of inorganic substances. 3 lec.

776 Chemistry of the Representative Elements (3)
Prereq: 576. Descriptive chemistry of A-group elements. 3 lec.

777 Chemistry of Transition Elements (3)
Prereq: 775. Descriptive chemistry of transition elements and their coordination compounds. 3 lec.

778 Chemistry of Heavy Elements (3)
Prereq: 775. (alternate years). Descriptive chemistry of lanthanides, actinides and selected heavy metals. 3 lec.

779 Physical Methods of Inorganic Chemistry (3)
Prereq: 775. (alternate years). Modern methods of study of structure and properties of inorganic substances. 3 lec.

790 Special Topics in Inorganic Chemistry (3)
Topics of special interest to inorganic chemistry majors. (A) Inorganic mechanisms; (B) Electron deficient compounds; (C) Ligand field theory; (D) Advanced synthetic methods. 6 lab.

891 Inorganic Chemistry Seminar (1)
Required of inorganic chemistry majors.

892 Organic Chemistry Seminar (1)
Selected topics from current literature presented by participating students and staff.

893 Analytical Chemistry Seminar (1)
Required of analytical chemistry majors.

894 Physical Chemistry Seminar (1)
Required of physical chemistry majors.

895 Doctoral Research and Dissertation (as recommended by dept.)

CHILD DEVELOPMENT (See Home Economics)

CHINESE

(See Foreign Languages and Literatures)

CIVIL ENGINEERING

(See Engineering, Civil)

CLASSICAL LANGUAGES

(See Foreign Languages and Literatures)

COMMUNICATION

(See Hearing and Speech Sciences, Journalism, Interpersonal Communication, Mass Communication or Radio-Television)

COMPARATIVE ARTS

DOCTORAL PROGRAM

The curriculum for the PhD program in comparative arts is conceived with a fundamental belief concerning advanced graduate study in the arts in mind. There is no intention in this program to present the student with a choice between scholarship and creative expression. Instead, the program is based on the belief that, for the creative individual, knowledge and understanding of his heritage and the development of acute critical abilities can only enhance his creative spirit, not hinder it.

With this in mind, the general range of course offerings for the doctoral program is arranged to stress the interrelationship of the major art forms. This purpose is achieved through a sequence of comparative studies arranged in chronological order and offered simultaneously within the chronology. All areas of the College of Fine Arts participate by offering graduate courses in a particular historical cycle within their own discipline. These courses are made available to graduate students within each school and to doctoral students in the program of comparative arts. In addition, continual course offerings in the college are available in special areas of study such as Latin American, Oriental and Pre-Columbian arts, music, literature, dramatic criticism and composition, city planning, urban design, etc. The departments of history, government, comparative literature, philosophy, languages and psychology also offer courses which are available to students in the doctoral program.

Applications for admission to graduate study at the doctoral level in comparative arts will be considered individually by a departmental committee established for this purpose.

In the practical or studio aspect the doctoral student may select from a wide variety of courses offered throughout the College of Fine Arts.

Each doctoral student is expected to complete, in addition, a prescribed number of course hours in work outside the College of Fine Arts. Normally this includes, at the least, work with the departments of history, English and philosophy (esthetics). The final research project for the degree must be comparative in nature, including work in at least two areas of the fine arts.

Requirements

To insure the breadth of interest and background for entrance into the program, each student must meet certain basic requirements. The student entering the program should have completed as a master's degree a program with a background emphasizing either a scholarly bias (e.g. master's in the humanities or social sciences) or one of an applied studio nature (e.g. master's in fine arts). The following areas should be covered in the total program of the student either by substantial and approved courses at the undergraduate level or in graduate courses:

1. Eight hours or two courses or the equivalent in the history of painting and sculpture or the history of architecture.
2. Eight hours or two courses or the equivalent in the history of music.
3. Eight hours or two courses or the equivalent in the history of visual theater.

At the doctoral level, the student is expected to pursue the historical and critical elements of the fine arts as his major emphasis. To this end the student's program is expected to encompass the following:

1. At least one course in each of the core areas.
2. At least two courses in the core areas each quarter.
3. An applied minor.
4. A dissertation involving work in at least two areas.

Students trained at the level of the master's degree in the studio or practical aspects of one of the particular arts will utilize this training as a minor area of study in the doctoral program.

The student is required, as a part of his total program, to demonstrate proficiency in at least two scholarly disciplines related to his area of concentration in the Department of Comparative Arts. For the doctoral degree in comparative arts these two disciplines may include the following:

1. A reading knowledge of two foreign languages.
2. A reading knowledge of one foreign language plus a minor of at least 16 hours of graduate level work in the literature of a foreign language.
3. A reading knowledge of one foreign language, plus statistics or some other relevant discipline such as Music Theory Systems.

Toward the end of the student's sixth full quarter of study, or when the coursework is virtually completed, and upon recommendation of the Graduate Committee of the department, the student must pass a comprehensive examination. In this examination the student must demonstrate the ability to make the necessary historical, philosophical and comparative analyses of the various art forms.

Upon the successful completion of his comprehensive examination the student shall submit a proposal for the dissertation, to be approved by the Graduate Committee of the department.

A dissertation is required involving comparative work encompassing at least two artistic areas.

The student's final examination prior to the granting of the degree is primarily an examination on the dissertation. This examination may take the form of a formal committee examination or a public presentation of the dissertation by the student. In either case, the examination will be an oral one.

As a demonstration of the candidate's ability to communicate his ideas all doctoral students are required to engage in teaching a course under the direction of the department or in some equivalent activity.

520X Problems in Comparative Arts (The Fine Arts in Florence) (1-6)

Prereq: enrollment in Ohio University in Italy program. Artistic expression in Florentine life as it may be seen in examples of architecture, painting, sculpture and music.

581 Independent Study (1-6)

Prereq: perm.

701 Music Theory Systems (4)

For nonmusician graduate students introducing musical theoretical systems c. 300 B.C. to present.

702 Music Theory Systems (4)

Prereq: 701. For nonmusician graduate students introducing musical theoretical systems c. 300 B.C. to present.

703 Music Theory Systems (4)

Prereq: 702. For nonmusician graduate students introducing musical theoretical systems c. 300 B.C. to present.

711 Music in Antiquity and the Middle Ages (4)

Cultural history of music to c. 1410.

712 Music in the Renaissance (4)

Cultural history of music c. 1410-c. 1600.

713 Music in the Baroque Period (4)

Cultural history of music c. 1600-c. 1730.

714 Music in the Classic Period (4)

Cultural history of music c. 1730-c. 1825.

715 Music in the 19th Century (4)

Cultural history of music in the 19th century.

716 Music in the 20th Century (4)

Cultural history of music in the 20th century.

720 Greek Art (4)

Development between Minoan/Helladic cultures and those of Alexandrian Empire.

721 Roman Art (4)

Motifs and art concepts ranging from Etruscan works to advent of Constantine.

722 Medieval Art (4)

Painting and sculpture from Constantine to Giotto.

723 Italian Renaissance Art (4)
Monuments, motifs and their implications in Quattrocento Italy.

724 Northern Renaissance Art (4)
Arts of northern Europe to 1530.

725 Art of High Renaissance and Mannerism (4)
Art and history of the Cinquecento.

726 Baroque and Rococo Art (4)
Painting and sculpture of 17th and 18th centuries.

727 Art of 19th Century (4)
Developments during and after the Industrial Revolution.

728 Modern Art (4)
Specific movements and artists since 1900.

729 Arts of the United States (4)
Specific problems and patterns from the Colonial era.

730 Arts of the Orient (4)
Selected studies in the arts of India, China and Japan.

731 Pre-Columbian Art (4)
Arts of early Mexico, Middle America and South America.

732 African Art (4)
Arts of Niger and Congo basins.

733 Ancient Near Eastern Art (4)
Motifs and monuments of Egypt, Mesopotamia, Assyria and Babylonia.

734 Seminar in Film I (4)
(fall). (For course description, see listing under Film 633).

735 Seminar in Film II (4)
(winter). Continuation of 734. See 734 for description.

736 Seminar in Film III (4)
(spring). Continuation of 734 and 735.

737 History of Photography (4)
Photography as art, science and industry. Leading photographers and their contributions. 3 lec.

738 History of Photography (4)
Continuation of 737. See 737 for description.

739 Art and Ideas in Painting (4)
Prereq: perm. Ideas and concepts concerning the creative act and the artist work-of-art relationship.

750 Seminar in Art History (4)

751 Architecture of Greece and Rome (4)
Shaping of architecture of classical world by social, religious, climatic and technical influences, from Mycenaean to Early Christian periods.

752 Early Medieval Architecture of Western Europe (4)
Early Christian, Carolingian and Romanesque architecture and their relationship to social and religious structures of the times; early Gothic architecture and influence of France in European culture.

753 Architecture of Gothic and Early Renaissance (4)
Space, structure and style, with emphasis upon economics, social and religious influences of 13th, 14th and 15th centuries.

754 Architecture of Late Renaissance, Baroque and Rococo (4)
Social, artistic and religious climates of the period and their influences upon architecture; emphasis upon Germany, France and England; reference to early Colonial American architecture.

755 Neo-Classicism and Romanticism in Architecture (4)

Greek and Roman revival; effects of Industrial Revolution; effects of archaeology upon architecture of 19th century.

756 Beginning of Modern Architecture (4)

Age of steel and its architectural development from c. 1880 to 1930s.

757 Contemporary Architecture of the Western World (4)

Education, practice, theories and works of some contemporary architects in Europe and America.

758 North American Architecture from Colonial to Eclectic Periods (4)

Influences of Old World styles—English, German, French, Spanish, Dutch—upon Colonial architecture and progress of 19th century architecture.

760 Seminar in Art Historiography (4)

Advanced course investigating theory and practice of art historical discipline.

770 Greek Theater and Drama (4)

First in series of 8 seminars covering in-depth theater and drama of western world from pre-historic times to contemporary.

771 Roman and Medieval Theater (4)

3 lec.

772 Renaissance Theater and Drama (4)**773 Restoration and 18th Century Theater (4)****774 Baroque European Theater (4)**

3 lec.

775 19th Century European Theater (4)

3 lec.

776 Contemporary Theater (4)**777 American Theater and Drama (4)****778 Seminar in Dance History and Criticism (4)**

Contemporary directions in dance, the function of dance as art, ritual and social activity; its development as spectacle and entertainment. Research projects.

779 Seminar in Dance History and Criticism (4)

Selected dance cultures of the world. Function of dance in society and its relation to other arts. Research projects.

881 Individual Problems (4-15)**891 Seminar in Comparative Arts (3)****895 Dissertation (as recommended by dept.).**

COMPUTER SCIENCE

The department of computer science does not offer an advanced degree program. However, a student who wishes to study computer science at the graduate level may apply credit for the courses listed below (except 552, 553 and 554) in a master's degree in mathematics. (See Mathematics)

Courses 552, 553 and 554 are offered to provide programming instruction for graduate students who wish to use the computer as a research tool in various disciplines.

505A Modeling and Analysis of Computer Systems (5)

Prereq: 341A, 381, Math 350A. Computer systems are characterized by hardware, software and operating environment so that such systems can be evaluated. Models of a portion or a function of batch, time-sharing or real-time computer systems developed and analyzed. Simulation, queuing, scheduling methods and probability and statistics used as tools.

508 Introduction to Discrete Structures (5)

Prereq: perm. Review of set algebra including mappings and relations. Algebraic structures including semigroups and groups. Elements of theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computer science.

541A Programming Languages (5)

Prereq: 508. Formal definition of programming languages including specification of syntax and semantics. Simple statements including precedence, infix, prefix and postfix notation. Global properties of algorithmic languages including scope of declarations, storage allocation, grouping of statements, binding time of constituents, subroutines, coroutines and tasks. List processing, string manipulation, data description and simulation languages. Run-time representation of program and data structures.

541B Compiler Construction (5)

Prereq: 541A. Review of program language structures, translation, loading, execution and storage allocation. Compilation of simple expressions and statements. Organization of compiler including compile-time and run-time symbol tables, lexical scan, syntax scan, object code generation, error diagnostics, object code optimization techniques and overall design. Use of computer writing languages and bootstrapping.

541C Systems Programming (5)

Prereq: 541A and 576. Review of batch process systems programs, their components, operating characteristics user services and their limitations. Implementation techniques for parallel processing of input-output and interrupt handling. Overall structure of multiprogramming systems on multiprocessor hardware configurations. Details on addressing techniques, core management, file systems design and management, systems accounting and other user-related services. Traffic control inter-process communication, design of system modules and interfaces. System updating, documentation and operation.

552 Introduction to Digital Computer Programming for Business (5)

Computer solution of problems in business. Problems in accounting, quantitative methods, management. Artificial language COBOL used.

553 Introduction to Digital Computer Programming for Engineering and Physical Science (5)

Computer solution of problems involving extensive numerical calculations as found in physical sciences, engineering and numerical mathematics. Artificial language FORTRAN used.

554 Introduction to Digital Computer Programming for Behavioral, Educational and Biological Sciences (5)

Problem organization for computer solution using scientifically oriented algorithmic languages such as FORTRAN and PL/I. Logical problem analysis, artificial language syntax and semantics, problem flow, testing and debugging, input/output, artificial intelligence and use of auxiliary storage.

576 Data Structures (5)

Prereq: 508. Basic concepts of data. Linear lists, strings, arrays and orthogonal lists. Representation of trees and graphs. Storage systems and structures and storage allocation and collection. Multi-linked structures. Symbol tables and searching techniques. Formal specification of data structures, data structures in programming languages and generalized data management systems.

581 Information Organization and Retrieval (5)

Prereq: 576. Structure of semiformal languages and models for representation of structured information. Aspects of natural language processing on digital computers. Analysis of information

content by statistical, syntactic and logical methods. Search and matching techniques. Automatic retrieval systems, question-answering systems. Production of secondary outputs. Evaluation of retrieval effectiveness.

601 Mathematical Models of Sequential Machines (5)

Prereq: 508. Definition and representation of finite state automata and sequential machines. Equivalence of states and machines, congruence, reduced machines and analysis and synthesis of machines. Decision problems of finite automata, partitions with substitution property, generalized and incomplete machines, semigroups and machines, probabilistic automata and other topics.

602 Theory of Computability (5)

Prereq: 508. Introduction to Turing machines, Wang machines, Shepherdson-Sturgis and other machines. Gödel numbering, and unsolvability results, halting problems, Post's correspondence problem and relative uncomputability. Machines with restricted memory access, limited memory and limited computing time. Recursive function theory and complexity classification. Models of computation including relationships to algorithms and programming.

610 Formal Languages and Syntactic Analysis (5)

Prereq: 541A and 576. Definition of formal grammars; arithmetic expressions and procedure grammars, context-free and finite-state grammars. Algorithms for syntactic analysis: recognizers, backtracking operator precedence techniques. Semantics of grammatical constructs: reductive grammars. Floyd productions, simple syntactical compilation. Relationship between formal languages and automata.

611 Artificial Intelligence and Heuristic Programming (5)

Prereq: 576. Definition of heuristic versus algorithmic methods, rationale of heuristic approach, description of cognitive processes and approaches to mathematical invention. Objectives of work in artificial intelligence, simulation of cognitive behavior and self-organizing systems. Heuristic programming techniques including use of list processing languages. Survey of examples from representative application areas. Mind-brain problem and nature of intelligence. Class and individual projects to illustrate basic concepts.

648 Mathematical Linguistics (5)

Prereq: perm. (Offered when demand is sufficient). Mathematical properties and structures of data sets. Theoretical machines as models for grammars.

COUNSELING

(See Education—Guidance, Counseling and Student Personnel)

DANCE

(See Comparative Arts)

ECONOMIC EDUCATION

The MA in economic education at Ohio University is administered by the faculty of the Department of Economic Education, College of Business Administration. Additionally, Ohio University offers a PhD that is administered by the faculty of the Department of Curriculum and Instruction, College of Education, in cooperation with the Department of Economic Education. For

information about the PhD program, see listing in Education

The MA is designed specifically for in-service and preservice teachers who have baccalaureate degrees and who meet the normal admission standards for the Graduate College and minimum departmental standards. A program of 48 quarter hours in economic education, economics and educational theory and research is required. Degree candidates are expected to take a minimum of 12 quarter credits in economic education and 27 quarter credits in economics. The student may elect either a thesis or a nonthesis program.

The total program must be planned with and approved by the graduate adviser. Applicants with little or no formal economics as undergraduates may be required to complete more than the 27 quarter hour minimum in economics.

546 Economics in the Curriculum (2-5)

For teacher-education students designed to provide study of (1) fundamental economic concepts, (2) methods of inquiry employed by economist and (3) relationship of economics content to classroom instruction and instructional materials.

547 Economic Analysis and its Application to the Curriculum (2-5)

For elementary and secondary teachers, designed to emphasize methods of inquiry employed by economists and their application to theories of instruction.

548 Economic Policy and its Application to the Curriculum (2-5)

For elementary and secondary teachers, designed to provide application of an economic analysis to economic policy and courses of study.

649 Economic Education Programs (3)

Prereq: perm. Economic education in the schools; administrative and organizational structures, current curriculum development projects, essential economic understandings that should be taught and their place in the curriculum, ways to improve economic education and economic education organizations.

651 Master's Seminar (1-3)

Prereq: perm. Writing of scholarly papers in areas of economic education. Required of all nonthesis master's candidates.

691 Economic Education Seminar (3)

Prereq: perm. Selected topics of current interest.

692 Economic Education Research (3-5)

Prereq: perm. Methodology, analysis of data and preparation of research findings.

693 Readings in Economic Education (1-15)

Prereq: perm. Readings on topics selected by student in consultation with a faculty member.

695 Thesis (1-15)

Prereq: perm. (As recommended by dept)

697 Independent Research in Economic Education (1-15)

Prereq: perm. Research in selected fields of economic education under direction of a faculty member.

698 Internship (as recommended by dept) (1-15)

Prereq: perm.

791 Economic Education Seminar (3-5)

Prereq: perm. Selected topics of current interest.

792 Economic Education Research (3-5)

Prereq: perm. Methodology, analysis of data and preparation of research findings.

ECONOMICS

A student beginning graduate work in the field of economics should ordinarily have undergraduate training which includes courses in the social sciences or business administration. It is recognized, however, that a wide variety of areas of concentration relate to or provide appropriate background knowledge for advanced study in economics.

Undergraduate courses in principles of economics, statistics, intermediate micro and macro theory and some quantitative orientation will ordinarily be deemed prerequisites for graduate work in this area, although students may be pursuing a graduate program. In every case the student's undergraduate program must be approved by the departmental admissions committee prior to his beginning graduate work.

All students seeking the master of arts degree are required to take History of Economic Thought, Advanced Microeconomic Theory and Advanced Macroeconomic Theory, and to specialize in two areas of economics (two courses for each area). Other courses are elective.

The student may choose one of three options: (1) 41 quarter hours plus thesis, or (2) 45 quarter hours plus master's seminar or (3) 48 quarter hours plus comprehensive examinations in two fields of concentration.

500 Mathematical Economics Foundations (4-5)
Introduction to differential calculus, integral calculus and linear algebra with economic and business models and applications.

501 Fundamentals of Economics (4)
Analysis of prices, markets, production, wages, interest, rent and profits.

502 Fundamentals of Economics (4)
Continuation of 501. See 501 for description.

506 Modern Economic Thought (4)
Contributions to economics of most significant writers since Alfred Marshall.

507 Institutional Economics (4)
Veblen, Commons, Ayres and other modern dissenters from traditional economic thought. Technological progress and institutional adjustment; influence on contemporary theory and policy.

510 Statistical Foundations (4-5)
Introduction to probability theory, statistical distributions, sampling, estimation, testing and decision theory for economists and business administration.

515 Economic History of the United States (4-5)
Economic development of United States. Growth of banking, manufacturing, labor unions and agriculture from colonial times to present.

516 European Economic History (4-5)
Economic growth of developed countries; industrial revolutions in Great Britain, France, Germany, Soviet Union and Japan. Historical experiences of these countries related to various theories of economic change.

518 Agricultural Development (4)
Patterns of agricultural development in U. S. and selected foreign areas; technological and demo-

graphic changes in agriculture; socio-economic problems; marketing arrangements; case studies of specific agricultural development projects.

520 Economic Development (4)

Nature of, obstacles to and future possibilities for economic growth of nations; problems of underdeveloped countries; studies of selected countries.

521 African Economic Development (4)

Prereq: 520. African societies as traditional economies and in process of modernization.

522 The Chinese Economy (4-5)

Prereq: 520. China's early industrialization, 1880-1931; socialist transformation of each economic sector, 1949-1967; overall performance of Chinese economy and each economic sector and Maoist revision of orthodox Marxist-Leninist economic doctrines.

523 The Economy of Latin America (4)

Prereq: 520 or perm. Economics of Latin American countries, prospects for economic development of the region, nature and origin of institutional obstacles to economic change. Economic heritage of colonial period and subsequent evolution of economic institutions, resources of the area and their utilization and trends in economic activity and policy in post-World War II period.

524 Economics of Southeast Asia (4 or 5)

Prereq: 520 or perm. Economic characteristics, development problems, strategies and prospects of countries of Southeast Asia.

525 Comparative Economic Systems (4-5)

Theoretical and institutional characteristics of capitalism and socialism with emphasis on prevailing economic systems in the United States, England and Russia.

526 Economics of the Soviet Union (4-5)

Operation of Soviet Union economy: allocation of resources; planning, saving and investment; agriculture; public finance; price system, and international trade.

528 Regional Analysis (4-5)

Theories of regional and interregional relationships and policies for regional development. Consideration of economic, geographic, demographic, political and social factors.

529 Economics of Planning (3-4)

Major applications of economic planning to private and public planning; national, regional, local, centralized and decentralized planning. Procedures and techniques; organization, economic analysis, social accounting, input-output analysis, linear programming, location theory, industrial complex analysis; gravity, potential and spatial models, computers and planning; research and development.

542 Economic Fluctuations and Growth (4)

Nature and causes of economic fluctuations, basic economic cycles, theories and their application in business. Advanced economic theory and stabilization policies and analysis of stability of equilibrium.

545 Stabilization Policy (4)

Use of economic theory to formulate monetary and fiscal policies for minimizing cyclical fluctuations in economic activity.

550 Urban Economics (4 or 5)

Application of economic analysis to urban problems: urban economic growth and structure (location patterns, land use and environment, urban transportation and housing); human resources in urban economics and public sector in a metropolitan context.

553 Monetary History of the United States (4)
 Correlation of developments in American history with development of monetary institutions, policy and theory. Evolution of commercial and central banking and relationship to economic activity in history of United States.

560 Organization and Structure of Industry (4)
 Market structure, conduct and performance in American industry, development of a theoretical framework for evaluation efficiency of industry; history and causes of merger activity; evaluation of characteristics of principal manufacturing and processing enterprises; contribution of theory of industrial organization to macroeconomic and microeconomic theory.

561 Economic Policy and Industrial Organization (4)

Social consequences of monopoly and competition, policy prescriptions dealing with economic concentration and market structure. Impact on United States business, and government regulation of business.

562 Government and Agriculture (4-5)

American agriculture as an industry; economics of government policies and programs; consideration of forces and objectives in policy formation.

563 Public Finance (3-4)

Role played by government as user of economic resources and redistributor of incomes; need for government's entry into economy, optimal size of government, selection of tax and expenditure schemes and effects of government economic activity on private sector.

566 The Economics of War and Peace (4)

Prereq: 102 or 302. Application of techniques of economic analysis to examination of various aspects of national military involvement. Will include consideration of both microeconomic and macroeconomic implications of war and peace.

568 Economics of Transportation (3-4)

Economics of transport pricing, regulation of transport and national transport policy.

569 Public Utilities (3-4)

Economic basis of public utility concept and its relation to business organization. Nature, scope, development, legal organization and regulation of public utilities.

570 Labor Economics (4)

Economic forces generating modern labor problems: history of labor movement, labor in politics, labor-management relations, wages, full employment.

571 Labor Legislation (4)

Law bearing upon labor problems: labor-relations legislation, old-age and unemployment insurance, workmen's compensation, wages-and-hours legislation.

573 Inequality of Personal Wealth and Income (4)

Prereq: any course in statistics. Quantitative and qualitative differences in wealth and income between low, middle and high income groups in society using historical, statistical and mathematical techniques.

575 Economics of Poverty (4)

Incidence, causes and consequences of poverty in affluent society. Economic theory, history, statistics applied to analysis of poverty-reduction measures.

576 Economics of Human Resources (4)

Current developments in theory, empirical research and policy with respect to investment in human resources, economic value of education, manpower programs and growth.

580 International Economics (4)

Economic relations of nations of the world. Economic basis for international trade and investments, mechanics of international exchange, tariffs, quotas, exchange control, cartels and state trading as devices of economic nationalism, international economic cooperation with special reference to organizations affiliated with the United Nations.

581 International Economic Policy (4)

Prereq: 580. Current economic developments of foreign and United States economic policy, including tariffs, controlled trade, international agreements, commercial treaties, foreign exchange control, clearing agreements, international liquidity controversy and contemporary balance of payments problems. Roles of institutions such as world bank and International Monetary Fund discussed with emphasis on interaction of domestic and international goals and policies.

600 Economic Analysis for Business Decisions (4-5)

Prereq: 303. Measuring economic relationships, analyzing market behavior and examining some major economic decisions in business firm.

603 Advanced Microeconomic Theory (4-5)

Prereq: 500 or perm. Consumer behavior, production and cost, behavior of firm in various types of markets (perfect competition, monopoly, oligopoly, etc.), factor pricing, general equilibrium and welfare economics.

604 Advanced Macroeconomic Theory (4-5)

Prereq: 500 or perm. National income accounting, development of static Keynesian model and comparison with classical model, consumption and investment functions and simple cycle and growth models (models constructed by Hicks, Kaldor, Domar and Duesenberry).

605 History of Economic Thought (4-5)

Major economic doctrines: mercantilists and cameralists, physiocrats, Adam Smith and classical school, historical school, Austrian school, Alfred Marshall and neoclassicists.

635 Econometrics I (4-5)

Prereq: 500. Applications of statistics to economics. Design and estimation of economic models. Estimation of simultaneous equation systems.

636 Econometrics II (4-5)

Prereq: 635. Problems of simultaneous equations: identification problems, indirect least squares, stage least squares, limited information methods, full-information and 3-stage least squares. Analysis of economic data such as multicollinearity, heteroscedasticity, lagged variables and dummy variables. Projects involving econometric methods. (Same as QM 636).

691 Seminar in Economics (2-6)

Seminars in following general areas: theory and thought; growth and development; monetary and fiscal; theory and policy; labor and human resources.

693 Readings in Economics (1-6)

Readings and/or research in selected fields in economics under direction of a staff member.

695 Thesis (1-15)

696 Master's Seminar (3)

Writing of scholarly papers in areas of economics. (Required of all master's candidates on nonthesis program.)

697 Independent Research (2-12)

Research in selected fields in economics under supervision of a staff member.

EDUCATION

Curriculum and Instruction

- Educational Media
- Elementary Education
- International Comparative Education and Educational Foundations
- Secondary Education
- Special Education

Educational Administration

Educational Research, Statistics and Evaluation

Guidance, Counseling and Student Personnel

Higher Education

Professional Laboratory Experience

The College of Education offers graduate courses to help school workers raise their level of competence in their professional work. Programs are available leading to the MEd and PhD degrees. Detailed descriptions of these various graduate programs may be secured from the College of Education.

The types of programs offered cover the following professional fields:

- Counselor Education in Higher Education
- Curriculum and Supervision
- Educational Administration
- Elementary Education
- Guidance and Counseling in Elementary Education
- Guidance and Counseling in Secondary Education
- Secondary Education
- Special Education
- Student Personnel in Higher Education

In each of these fields, and to a limited extent in some other fields, the College of Education is prepared to advise students and to help them plan their graduate programs.

MASTER'S PROGRAMS

Students wishing to major in education may have a program of study arranged with a minimum of 40 hours of course work and EdRS 695 Thesis, or a program of study with a minimum of 45 hours of coursework including EdRS 691 Seminar in Education.

The most common programs of preparation for graduate students seeking the master of education degree are described in the following sections. A student seeking certification in Ohio or another state for administrative, supervisory or pupil personnel services positions should seek advice about requirements from his adviser.

To provide a common basis in the field underlying all aspects of education, all majors are required to complete the following:

- History or Philosophy of Education (one course)

- Introduction to Graduate Study (EdRS 501)
- Thesis (EdRS 695) or Seminar in Education (EdRS 691)

Majors in Education

The College of Education staff has prepared programs of study in several areas of specialization. These are listed below with brief comments as to their several purposes. Detailed programs, including required courses and suggested electives, may be secured from the Office of Graduate Studies in Education or from the College of Education staff members specializing in the area of the student's interest.

DOCTORAL PROGRAMS

Advanced preparation which may lead to the doctor of philosophy degree is offered with majors in counselor education, curriculum and instruction, educational administration, and guidance and counseling and student personnel services in higher education. Areas of specialization in elementary and secondary education are offered at the doctoral level within Curriculum and Instruction. Minors for the doctorate are available in these and other areas of education and in other departments of the University.

Students who are admitted to doctoral study in education are expected to apply for admission to the division of advanced studies in education after two quarters of work. This admission is based upon a review of the student's qualifications, completion of at least nine hours of coursework, and the results of certain examinations. If admitted to advanced studies, the student is assisted by an advisory committee in developing the remainder of his program.

Curriculum and Instruction

The Department of Curriculum and Instruction offers the master of education degree and the PhD degree.

Master's programs are offered in elementary, secondary and special education. Specific program emphases include curriculum and instruction, reading, mental retardation, learning disabilities, elementary, secondary and special education supervision.

PhD programs prepare individuals for college level positions in teacher education and curriculum and instructional and supervisory positions in school systems.

Specific program emphases include curriculum theory, curriculum and instructional development, supervision of instruction and curriculum and instruction in major teaching fields.

Students not seeking a degree may pursue graduate courses on a nondegree basis in a planned program of professional development.

511 Principles of Curriculum Organization and Development (4)

Prereq: perm. Foundations and principles of curriculum patterns and revision procedures at elementary, secondary and college levels. (Formerly EdAd 671, Principles of Curriculum Organization and Development.)

561 Workshop in Curriculum and Instruction (1-15)

Designed to provide practicing teachers and other instructional personnel with in-service education directed toward their identified needs. Facilitates offering of short courses, workshops and summer institutes. Following are areas of concentration currently available:

- A. Language Arts
- B. Social Studies
- C. Science
- D. Mathematics
- E. Reading
- F. Kindergarten
- G. Individualizing Instruction
- H. Team Teaching
- I. Interaction Analysis
- J. Developing Behavioral Objectives
- K. Curriculum Development
- L. Interdisciplinary Topics
- M. Special Topics
- N. Special Education Topics
- O. Supervision of Instruction

601 Supervision of Instruction (4)

Student experiences center on basic concepts and theories of supervision, case studies of supervisory situations and basic research in education and ancillary fields such as psychology, sociology, business administration, philosophy and communications. (Formerly EdAd 676, Supervision of Instruction.)

EDUCATIONAL MEDIA

580 Introduction to Educational Media (4)

Principles of instructional materials and media applied to teacher-student communication. Basic experiences in production of instructional materials and equipment operation. Research paper required. Lab.

581 Production of Instructional Materials (4)

Prereq: 580 or perm. Use and preparation of locally produced, inexpensive instructional materials. Lab experience in use of pictures; lettering; coloring; preservation and reproduction techniques for pictures, slides, transparencies, etc.

582 Organization and Administration of Educational Media Programs (5)

Prereq: 580-581. Duties of university and public school media directors; budgeting, training of personnel, handling and classifying materials, management and evaluation of programs. Research paper required.

589 Practicum in Educational Media (3-6)

Prereq: 580-581, grad rank. Course participants evaluate a number of media centers. Participants required to prepare written reports on center evaluations. Visitations arranged for several university media areas.

ELEMENTARY EDUCATION

MASTER'S PROGRAM

Master's degree programs are offered in elementary education and elementary curriculum and supervision.

The master's program in *elementary education* is designed for those who are beginning graduate preparation for increasing their competence as classroom teachers.

The master's program in *curriculum and supervision* is planned to provide for the minimum requirements (January, 1972) for certification as a supervisor or curriculum director in Ohio.

DOCTORAL PROGRAM

This program continues the general broadening of the professional preparation for elementary teachers and supervisors. The PhD in elementary education is designed to prepare experienced classroom teachers for positions in teacher education or in supervisory capacities in the public schools. The program is flexible to permit a high degree of specialization in one of the basic curriculum areas such as reading and language arts, social studies, mathematics or science.

The PhD is also offered in curriculum and supervision.

A person planning to enter the PhD program must submit scores on the Graduate Record Examination (combined scores of 1000 on verbal and quantitative and 70th percentile on the advanced education section) before admission to the Graduate College will be considered.

500 Advanced Studies of Children (4)

Prereq: 20 hrs of education or psychology. Intensive study of basic research in child development from conception to maturity and resultant implications for educational practices.

510 Programs and Problems in Teaching Reading in the Elementary School — Practicum (4)

Prereq: EdRS 501, perm. Current programs, materials and practices in reading instruction; developmental concept, emphasizing optimum realization of pupil potential and utilization of reading in total school curriculum.

511 Diagnosis and Treatment of Reading Disabilities (4)

Prereq: 510, EdRS 501. Correlates of variability in reading proficiency. Incidence of retardation and disability. Proposed causes of failure and concept of multiple causation. Specialized materials and instructional efforts. Systematic observation of cases of reading disability and preparation of case report.

512 Reading Laboratory — Practicum (4, max 12)

Prereq: perm. Application of developmental approach to problem cases in reading instruction, participation in diagnostic examination, parent and teacher conferences, individual procedures in tutoring, staffing of cases and preparation of reports. (Weekly group discussion period, lab sessions arranged.)

520 Programs and Problems in Teaching Oral and Written Communication in the Elementary School — Practicum (4)

Prereq: EdRS 501. Current programs, materials and instructional practices in language-arts curriculum. Treatment of both impression and expression aspects of oral communication and of several aspects of written communication. Identification and individual investigation of problem areas.

521 Critique in Children's Literature (4)

Seminar in critical analysis of research and theory related to children's literature. Opportunity to study individual problems.

530 Problems and Practices in Modern Elementary Mathematics — Practicum (4)

Prereq: EdRS 501, perm. Modern elementary mathematics curriculum with emphasis on why changes are occurring. Nature of changes as reflected from experimental programs; effect of changes on methods of teaching. Implementation of these changes in the classroom.

540 New Programs and Practices in Elementary Science — Practicum (4)

Prereq: EdRS 501, teaching experience. New programs and trends in science teaching identified and evaluated. Philosophy, content and grade level placement of topics in federal, foundations and privately sponsored experimental programs in elementary science identified. Practice in using materials proposed by those various groups.

541 New Topics in Science and Science Education for Elementary School Teachers (4)

Prereq: teaching experience. Modern advances in science, such as space science, atomic energy, electronics and biochemistry, etc., to determine suitable content, apparatus and grade placement for presentation in elementary schools. Development and use of curriculum guides, modern units, outdoor education, science fairs, field trips, programmed materials and similar methods of advancing science education required.

550 Programs and Practices in Elementary Social Studies — Practicum (4)

Prereq: EdRS 501, perm. Trends in modern social studies curriculum.

660 Elementary School Curriculum (5)

Prereq: EdRS 501. Curriculum as a basic educational concern; issues involved in selecting and organizing content; systematic study of curriculum development in the elementary school.

662 Elementary School Supervision (4)

Prereq: 660. Leadership skills, principles, practices and programs which lead to improved education and teacher growth in the elementary school.

690 Research in Elementary Education (2-6)

Prereq: perm. Individual study, under direction of a faculty member, of a basic research problem, culminating in a written report.

691 Seminar in Elementary Education (3)

Prereq: 35 hrs. Special problems in elementary education.

695 Thesis (2-5)

Prereq: perm.

700 Readings and Research in Human Development (3-5)

Prereq: perm. Interpretation of scientific literature on human development as related to classroom experience in preschool through adolescence. Independent projects and solving selected educational problems.

710 Research and Curriculum in Elementary Education — Reading (4)

Prereq: perm. Critical evaluation of literature and recent research on objectives, content and methodology. History of instruction, current problems and issues, recent trends and emphasis in teaching practices. Impact of dominant theories of learning and philosophies of education. Research design and methodology in scientific investigations.

712 Reading Laboratory Practicum (3-9)

Prereq: perm. Application of developmental approach to problem cases in reading instruction; participation in diagnostic examination, parent and teacher conferences, individual procedures in tutoring, staffing of cases and preparation of reports. (Weekly group discussion period, lab sessions arranged.)

720 Research and Curriculum in Elementary Education — Oral Communication and Writing (4)

Prereq: perm. Critical evaluation of literature and recent research on objectives, content and methodology. History of instruction, current problems and issues, recent trends and emphases in teaching practices. Impact of dominant theories of learning and philosophies of education. Research design and methodology in scientific investigations.

730 Curriculum in Elementary Education — Mathematics (4)

Prereq: perm. Critical evaluation of literature and recent research on objectives, content and methodology. History of instruction, current problems and issues, recent trends and emphases in teaching practices. Impact of dominant theories of learning and philosophies of education.

740 Curriculum in Elementary Science Education (4)

Prereq: teaching experience. History of science instruction, curriculum problems, issues, recent trends and emphases in teaching practices. Impact of dominant theories of learning and philosophies of education on current curriculum changes in elementary school science. Critical review of existing conventional programs used as a background for examining experimental programs. Emphasis on historical development of science education from dominance of nature study and esthetics to modern experimental program.

750 Curriculum in Elementary Social Studies (4)

Prereq: perm. Students critically evaluate literature and recent research on objectives, content and methodology; survey history of instruction, current problems and issues, recent trends and emphases in teaching practices, and determine implications of these for development of social studies curriculum for elementary schools.

791 Advanced Elementary Seminar I (4)

Prereq: perm. Preparation of research proposal.

792 Advanced Elementary Seminar II (4)

Search of literature, gathering and processing data required for research initiated in proposal prepared in 791.

793 Advanced Elementary Seminar III (4)

Completion of research proposal started in 791 and preparation for formal report.

831 Research in Elementary Education — Mathematics (4)

Prereq: perm. Research design and methodology in scientific investigations.

841 Research in Elementary Education — Science (4)

Prereq: 541 or 740. Critical evaluation of recent research on objectives, content and methodology in science education. Research design and methodology of these investigations studied in detail. Review of microfilm research studies and abstracts made to identify areas and problems requiring further research.

851 Research in Elementary Social Studies (4)

Prereq: perm. Student surveys selected current research pertaining to social studies in elementary school, surveys statistical methods utilized in this research and prepares an individual or group research project.

860 Seminar in Elementary Curriculum (4)

Prereq: perm. Critical study of research findings in curriculum areas; issues, problems and theories.

890 Research in Elementary Education (2-12)

Prereq: admission to advanced standing.

895 Dissertation (2-12)

Prereq: perm.

EDUCATIONAL FOUNDATIONS**500 History of Western Education (4)**

Prereq: perm. Survey of education in western world from ancient Judaic schools to major contemporary developments. Emphasis on institutional developments and cultural events which accompanied them.

501 History of Education in the United States (4)

Prereq: perm. Survey of educational developments from colonial America to present. Readings include both primary and secondary sources. Emphasis on institutional developments and cultural events which accompanied them.

503 Evolution of Educational Thought (4)

Prereq: perm. Study of selected educational theorists and cultural assumptions which influenced their ideas. Where available, readings are from primary sources.

514 Philosophies of Education (4)

Prereq: perm. Survey of European and American educational theorists and movements from a philosophic perspective. Major European philosophic positions assessed, and contemporary educational thought in the United States studied.

515 Social Structure and Change in Education (4)

Prereq: perm. Studies in interaction of social structure and educational reform. Concepts of class, status, bureaucracy, technocracy and cultural pluralism assessed in their relationships to sociology of knowledge and educational alternatives.

710 Advanced Foundations of Education (4)

Prereq: perm. Seminar for selected interdisciplinary studies in social, cultural and philosophic foundations of education.

711 Seminar: Analysis of Educational Roles (4)

Role theory with special reference to key education roles. Knowledge about educational roles assessed leading to needed research in this area.

712 Research on Behavior and Development of Youth (4)

Individual research projects.

INTERNATIONAL COMPARATIVE EDUCATION

520 Comparative Cultures and Education (4)

Emphasis on distinctive cultural, economic and political forces which shape patterns, problems and roles of education in some selected developed and developing nations. These include U.S., some European countries and at least one African and/or Asiatic nation where a former or present western culture has an impact. Assessment of this impact especially on educational developments.

525A Education and Development in Africa (4)

Prereq: perm. Introductory interdisciplinary course focusing on tradition and change in African societies, problems of political independence, economic development, cultural values in transition, tribalism and nationalism and the role of Africa in world peace and international cooperation. Tradition and change in African education, landmarks in African educational developments, the role of education in economic and technological development. Issues and problems in African education.

525B Education and Development in Asia (4)

Prereq: perm. (spring). Tradition and change in Asian education, landmarks in Asian educational developments, role of education in economic and technological development. Issues and problems in Asian education.

525C Education and Development in Latin America (4)

Prereq: perm. (fall). Tradition and change in Latin American education, landmarks in American educational developments, role of education in economic and technological development. Issues and problems in Latin American education.

530 Programs in International Education (3)

Prereq: perm. (spring). Assistance programs to education in developing nations; foundation programs, UNESCO programs, A.I.D. programs. Assistance programs of other nations. Objectives, structures, funding, organization and plans for implementation.

532 Perspectives in International Education (4)

Prereq: perm. Introductory interdisciplinary course dealing with concept of international understanding, its psychological, economic and political pre-conditions, perceptions, values and attitudes that constitute or impede understanding among individuals, groups, races and nations. Human and cultural dimensions in technical assistance programs and in international relations, role of education in attitude change and formation relative to international understanding and development, issues involved.

620 Individual Studies in Comparative Education (2-6)

Prereq: perm. Studies in an area of national development.

625 Seminar in Comparative Education (3-5)

(winter). Introductory seminar providing opportunity to identify areas of interest and concern, to exchange ideas and views with others (including students from abroad) and to develop a rationale for study of educational systems and developments in other societies. Affords foreign students a technique for viewing American education and a means for American students to look abroad.

725 Advanced Seminar in Comparative Education (5)

Emphasis upon interdisciplinary treatment of problems and concerns. Contemporary situations investigated in relation to dominant factors in economic, cultural and political environment. Techniques for comparative study of educational systems and developments.

730 Internship in Comparative Education — United States or Abroad (10-15)

A one-year assignment with a statewide operation such as aid or assisting in comparative education program or an assignment abroad. Interns required to have had experience in teaching in the U.S.

SECONDARY EDUCATION

MASTER'S PROGRAMS

The master's degree program in secondary education is designed to provide teachers with a means of improving teaching competencies and developing additional professional breadth and depth. Students must complete a minimum of 48 hours including core requirements, specialization in secondary education, electives in education and approximately 12-15 hours in a substantive (content) field.

The master's degree in secondary supervision is designed for individuals who are beginning preparation for positions as secondary school supervisors. Course requirements include the necessary areas to qualify for the provisional supervisor's certificate.

DOCTORAL PROGRAM

The doctoral program in secondary education prepares students for positions as methods and clinical professors in higher education and as curriculum directors and supervisors in school systems and state departments of education. The program requires a minimum of 135 quarter hours beyond the bachelor's degree and is flexible to permit specialization in various content and professional areas.

595 Seminar in Science Education (3)

Prereq: perm. Philosophy and approach incorporated in Intermediate Science Curriculum Study program and participation in video-taped micro-teaching sessions.

611 High School Curriculum (4)

Prereq: 511. Curriculum patterns and theories of construction, curriculum reorganization and general curriculum research.

612 Junior High-Middle School Curriculum (4)

Prereq: 511. Concentrates specifically on early adolescent age and is structured to provide special emphasis on unique concepts and purposes of jr. high - middle school curriculum and its role in providing articulation between elementary and sr. high school.

613 High School Supervision (4)

Prereq: 511. Principles underlying supervision. Techniques which promote growth of secondary school teaching situation.

620 Teaching of Reading in Junior and Senior High School (5).

Prereq: perm. Materials, methods and developmental patterns of adolescent within area of reading. Remedial programs and adaptation of materials to adolescent.

671 Programs and Practices in Student Activities (4)

Prereq: perm. Comprehensive treatment of school-recognized activities in extracurricular program. Open to elementary, jr. and sr. high school teachers and administrators.

672 Post High School Adult Education—Curriculum and Practices (4)

Prereq: perm. Curriculum development in adult education; values and problems. Programs offered by various school systems.

673 Advanced Principles of Teaching (4)

Critical appraisal of research in areas of learning and teaching.

674 Evaluation of Secondary Schools (4)

Criteria, procedures and problems relating to evaluation of secondary school personnel and programs. Field experience in evaluation is encouraged.

690 Research in Secondary Education (2-6)

Prereq: perm. Research on secondary school problem as individual project or as part of larger study.

691 Seminar in Education (3)

Prereq: 35 hrs or perm. Special problems in secondary education and secondary-school supervision.

695 Thesis (2-10)**714 Curriculum Theory in Secondary Education (5)**

Prereq: perm. Major curriculum models and their underlying theory. Critical reading and interpretation of research conducted in secondary school curriculum. Applications of theory and research in new models.

721 Research and Problems in Secondary Education—Academic Curriculum (5)

Prereq: perm. Secondary education problems related to specific aspects of academic curriculum.

722 Research and Problems in Secondary Education—Special Fields Curriculum (5)

Prereq: perm. Secondary education problems related to specific aspects of special fields curriculum.

723 Research and Problems in Secondary Education—Vocational Curriculum (5)

Prereq: perm. Secondary education problems related to specific aspects of vocational curriculum.

724 Research and Problems in Secondary Education—Activities Curriculum (5)

Prereq: perm. Secondary education problems related to specific aspects of activities curriculum.

791 Advanced Seminar in Education I (4)

Prereq: perm. Review of current literature and research in education. Preparation of research proposal.

792 Advanced Seminar in Education II (4)

Prereq: perm. Search of literature, gathering and processing of data required in research proposal prepared in 791.

793 Advanced Seminar in Education III (4)

Prereq: perm. Completion of research proposed in 791 and preparation of formal report.

880 Practicum in Secondary Education—Mathematics (5)

Prereq: perm. Depth study of school system and its mathematics curriculum with critique by faculty and report by student, utilizing available research.

881 Practicum in Secondary Education—Science (5)

Prereq: perm. Depth study of school system and its science curriculum with critique by faculty and report by student, utilizing available research.

882 Practicum in Secondary Education—Social Studies (5)

Prereq: perm. Depth study of school system and its social studies curriculum with critique by faculty and report by student, utilizing available research.

883 Practicum in Secondary Education—English (5)

Prereq: perm. Depth study of school system and its English curriculum with critique by faculty and report by student, utilizing available research.

884 Practicum in Secondary Education—Modern Foreign Languages (5)

Prereq: perm. Depth study of school system and its modern foreign language curriculum with critique by faculty and report by student, utilizing available research.

890 Advanced Research in Secondary Education (3-10)

Prereq: perm. Individual research on problem in field of secondary education.

895 Dissertation (2-15)**SPECIAL EDUCATION**

A flexible program is available to students seeking a master's degree in special education. The program provides for students with undergraduate backgrounds in special education as well as those with no such experience. There are three areas of study:

1. Educable Mental Retardation (Slow Learners)
2. Trainable Mental Retardation
3. Learning Disabilities

The program will meet state certification requirements in special education for those who have not already been certified and provides specific training in teaching, diagnosis, remediation, curriculum instruction, administration, organization and supervision of special education.

Programs of study should be filed with the Department of Curriculum and Instruction as soon as possible after admission or prior to the completion of 15 quarter hours of credit. Details of degree requirements are available through the assigned adviser.

A Mental Retardation Diagnostic Unit is associated with the College of Education. This unit provides diagnostic referral and consultative ser-

vices for the mentally handicapped and their families in a seven-county area of Southeastern Ohio and is a valuable resource for graduate training in special education.

An Instructional Materials Center (IMC) is located near the College of Education. This center serves special education teachers in eight surrounding counties. The IMC provides opportunities for students to examine and use a variety of special materials developed for the handicapped.

Other campus facilities available to graduate students in special education include the Speech and Hearing Clinic, Remedial Reading Clinic, Guidance Clinic, Center for Psychological Services, Preschool Class for Handicapped Children and an Adult Activity Center for the retarded.

A limited number of graduate fellowships and graduate assistantships are available in the area of special education.

570A Curriculum and Instructional Materials for the Mentally Retarded (3)

Prereq: perm. Advanced principles and methods of curricular development and construction of resource units and teaching aids.

570B Language Arts for the Mentally Retarded (3)

Prereq: perm. In-depth methods and materials of language arts instruction with the mentally retarded.

570C Social Studies and Science for the Mentally Retarded (3)

Prereq: perm. Detailed study of instruction in social studies and science, including development of a teaching unit for the mentally retarded.

570D Mathematics for the Mentally Retarded (2)

Prereq: perm. Mathematics instruction with the educable and trainable retarded giving emphasis to vocational and social usage.

570E Vocational Education for the Retarded (3)

Prereq: perm. Community surveys as means of delineating potential employment opportunities for handicapped persons. Emphasis on job analysis and establishing contacts with employers.

571 Problems in Education of Mentally Retarded Children and Youth (2-9)

Critical evaluation of selected current problems confronting teacher, consultant, specialist or administrator concerned with education of mentally retarded children and youth.

572 Diagnosis and Evaluation of Handicapped Children (4)

Prereq: perm. Formal and informal methods of assessment, screening and classification; collection and appropriate application of clinical data; formulation of prescriptive educational plans for handicapped children and youth utilizing laboratory experience and multi-disciplinary consultations.

573 Education of the Multi-Handicapped (4)

Etiology, diagnosis, classification, learning potentials and general characteristics of multiple handicapped children with emphasis on curriculum design and administrative organization.

574 Introduction to Learning Disabilities (4)

Prereq: perm. Overview of the field of learning disabilities; various theoretical approaches to remediation.

575 Education of the Trainable Retarded (4)

Prereq: perm. Etiology, diagnosis, classification, learning potential, organization of curriculum and teaching methodology for trainable retarded, including brain-damaged, cerebral palsied and hyperactive children.

576 Administration and Organization of Special Education (4)

Historical perspective, diagnostic procedures, legislative provisions, research implications, community and professional resources and general organization and management of special education programs.

577 Education and Counseling of Parents of the Handicapped (4)

Prereq: perm. Development of skills required to set up parent education programs with emphasis on the educational aspect; interpreting problems of handicapped child to parents.

578 Early Childhood Education for the Handicapped (4)

Prereq: perm. Purpose, organization and methods of early childhood education of the handicapped. Planning, guiding, supervising and evaluating growth and behavior of young handicapped children.

579 Supervising of Special Education (4)

Prereq: perm. Leadership skills, principles, practices and programs leading to improved education and teacher growth in special education.

580 Homemaking and Family Living for the Retarded (3)

Advanced organization and methodology of objectives, methods and materials for teaching family living skills to handicapped children.

581 Medical Aspects of Handicapping Conditions (2)

Prereq: perm. Development of medical terminology and understanding of effect of medical conditions on learning disabilities. Emphasis on biochemical, convulsive and neurological disorders.

582 Diagnostic and Prescriptive Teaching with Learning Disabled (4)

Prereq: 574 and perm. Methods of identifying and evaluating children's academic and behavioral problems and effective remedial procedures.

583 Education of the Emotionally Disturbed (4)

Prereq: perm. Analysis of organization, specified psycho-educational procedures, modification of instruction materials and classroom management techniques.

584 Teaching the Emotionally Disturbed (4)

Prereq: 583 and perm. Programs, methods and materials used in education of emotionally disturbed child emphasizing team-developed prescriptive educational and behavioral procedures.

585 Behavioral Management of the Handicapped (3)

Prereq: perm. Charting classroom behavior and behavior of teachers; overview of psychological principles of behavior modification; application of principles of behavior modification and reinforcement theory.

590 Problems in Learning Disabilities (2-9)

Prereq: perm. Critical evaluation of selected problems in area of learning disabilities.

610 Practicum in Education of Mentally Retarded (2-6)

Prereq: perm. Working directly with learning disabilities classes or with individual children to identify problems and develop and implement a prescriptive plan.

620 Practicum in Education of Emotionally Disturbed (2-6)

Prereq: perm. Individual experiences selected for preparation of personnel for classroom, consultant or supervisory positions.

630 Practicum in Administration of Special Education (2-6)

Prereq: perm. Directed administrative experiences in educational programs for the handicapped.

640 Practicum in Learning Disabilities (2-6)
Prereq: perm. Working directly with learning disabled classes or with individual children to identify problems and develop and implement a prescriptive plan.

650 Practicum in Supervision of Special Education (2-6)
Prereq: perm. Directed supervisory experiences with special education classroom units.

660 Readings and Research in Special Education (2-4)
Prereq: perm. Study and interpretation of scientific literature on handicapped children. Independent and directed projects.

691 Seminar in Education (3)
Prereq: 35 hrs or perm. Special problems in special education.

695 Thesis (2-10)
Prereq: perm.

Educational Administration

Programs are offered in educational administration leading to the master of education and the doctor of philosophy degrees. Students seeking certification may work toward the following administrative certificates: elementary principal, secondary principal, administrative specialist and superintendent. The doctoral degree is in educational administration with areas of concentration available in such fields as business administration, personnel administration, higher education administration and administration of instructional services and research.

Opportunities for specialization are provided to meet individual needs and to prepare for specific responsibilities in school systems, colleges and universities and state departments of education.

The resources of the Center for Educational Research and Service and the projects which it undertakes offer opportunities for graduate students to participate in field studies of real situations and problems.

The cooperative arrangements with other colleges of Ohio University make it possible for the student to pursue a wide range of interests and thus achieve a high degree of competence for a specific type of position.

Students may apply for scholarships, graduate assistantships and fellowships. All students accepted for graduate appointments do research work or are assigned teaching responsibilities in the College of Education.

601 Introduction to Educational Administration (4)

Nature and critical tasks of educational administration, problems and issues, purposes, situational factors, processes; qualifications for the job, personal assessment, preparations, in-service training, professional opportunity and challenge.

611 Educational Law (5)

Prereq: 601. Selected principles of constitutional, statutory, case and common law affecting schools and school personnel with special reference to Ohio school law.

621 Educational Finance (5)

Prereq: 601 or with 601. Economics of educational finance, financial problems in education, sources of revenue, variations in financial ability and effort; local, state and federal financial planning.

631 Introduction to Personnel Administration in Education (4)

Prereq: 601. Organization and implementation of personnel function. Covers organizational structure, staff procurement, staff selection, staff development and conditions of service for people in the organization. Competencies in course conceptually oriented to provide understanding of personnel process.

640 Administration of the Elementary School (4)

Prereq: 6 hrs including EdAd 601 and EdRs 501. Leadership theories and practices. Autonomous school; school/community organization; social-political forces; instructional leadership; teacher appraisal.

641 Junior High - Middle School Administration (4)

Prereq: 9 hrs including EdAD 601. Designed for persons aspiring to become administrators of jr. high-middle school. Nature of adolescent, problems of administration, operational task of jr. high-middle school. Independent research projects centered on administration.

642 High School Administration (4)

Prereq: 9 hrs including EdAD 601. Current administrative principles and practices essential to effective organization and management of secondary school. Emphasis on leadership role of principal, basic issues in management of secondary education and in-depth study of trends in secondary school administration.

652 Problems in Administration of Education (1-4)

Prereq: perm. Intensive courses of one week or longer. Each course covers a phase of administration, such as business, personnel, facilities, etc. Credit to depend on length of course. (A workshop-type of organization given at specified times, usually during the summer.)

661 Public Relations in Education (4)

Prereq: 601, perm. Principles, program organization, agents and media in effective school public relations. Students may develop materials for their own use.

690 Research in Educational Administration (2-6)

Prereq: perm of adviser. Individual research studies.

691 Seminar in Education (3)

Prereq: 35 hrs or perm. Special problems in educational administration.

695 Thesis (2-10)

Prereq: perm.

702 State and National Administration of Education (4)

Prereq: 601. State program of education, state responsibility, educational organization, certification and tenure, national problems in education.

703 Administration of Education in Other Countries (4)

Prereq: 601. Programs, organizational structure and control of education in other countries. United States assistance programs for educational administration in developing nations.

723 Federal Financing of Educational Programs (4)

Prereq: 601 and 621. Developing proposals, contracting, operating and reporting federally financed programs in education.

732 Problems in High School Administration (5)

Prereq: perm. Critical appraisal of major problems and issues in secondary school administration. Individual and group study procedures.

734 Competency Development in Personnel Administration (5)

Practicum designed to develop competency to perform effectively in area of personnel administration. Includes all aspects of personnel administration as a team concept. Specific competencies developed include writing policy, staff selection, staff evaluation, establishing record systems, career counseling, salary administration and meeting organizational and staff needs. Competencies developed in terms of actual situation.

742 Planning Educational Facilities (5)

Prereq: 601, perm. For advanced graduate students. Specific planning techniques and problems, special organization and conditioning; study of innovations in facilities; examining facilities, and discussion sessions with architects, engineers and superintendents.

791 Advanced Seminar in Education I (4)

Prereq: perm. Review of current literature and research in education. Preparation of research proposal.

792 Advanced Seminar in Education II (4)

Prereq: perm. Search of literature, gathering and processing of data required in research proposal prepared in 791.

793 Advanced Seminar in Education III (4)

Prereq: perm. Completion of research proposed in 791 and preparation of formal report.

811 Legal Aspects of Educational Administration (4)

Prereq: 611 and admission as post-master's student in education administration. Intensive study of selected aspects of both case and statutory law, constitutional basis for education, schools in their legal setting, school legislation and relevant court decisions. Extensive reading in an approved law library required.

821 Seminar in Educational Finance (5)

Prereq: perm. Individual research in problem areas of educational finance.

831 Seminar in Collective Negotiations in Personnel Administration (4)

Prereq: 631. Development of theoretical framework within which to handle collective negotiations. History of movement, recognition and representation, procedures, scope of negotiation process, bargaining power and impasse procedures, economics of bargaining, collective negotiation agreements, impact on educational administration and review of court cases and legal implications.

833 Seminar in Secondary School Administration (5)

Prereq: perm. Important problems and issues in secondary schools. Emphasis on curriculum and instruction and administrative aspects of supervision.

844 Seminar in Educational Facilities (5)

Prereq: perm. For advanced graduate students. Individual research in problem areas of interest.

851 Business Administration in Education (4)

Prereq: perm. Budget preparation and control, accounting, auditing, purchasing, debt service, legal aspects, operation and maintenance.

854 Seminar in Business Administration in Education (5)

Prereq: perm. Case and field studies.

864 Seminar in Public Relations (5)

Prereq: 601, perm. New concepts and specific techniques in educational public relations, public involvement in planning for change, in-depth investigation of problems of specific interest.

881 Organization and Management in Educational Administration (4)

Prereq: perm. Principles and processes in educational administration, administrative organization and relationships, authority and responsibilities.

882 Theory and Practice in Educational Administration (4)

Prereq: perm. Cases and concepts; administrative theory and its practical application.

884 Educational Planning and Evaluation (5)

Prereq: perm. Techniques and practice in study of organization, administration, operation and long-range planning for educational enterprises—school systems, intermediate districts, vocational programs and institutions of higher education.

890 Research in Educational Administration (2-6)

Prereq: perm. of adviser. Individual research studies.

895 Dissertation (2-15)

Prereq: perm.

Educational Research, Statistics and Evaluation

In addition to the courses provided in this area, the research staff provides consultative service to both faculty and graduate students in the areas of research design, statistics, educational measurement and computer utilization. Laboratory facilities, including calculating machines, card punch and a library of statistical computer programs are made available.

501 Introduction to Graduate Study (3)

History and purposes of graduate education. Methods of research in education. Selection, planning and evaluation of research problems. Required of all graduate students in education.

510 Educational Measurements (4)

Application of measurement theory to selection and use of standardized tests. Reliability, validity, practicality, standard scores, development of testing programs and problems of selection and assignment.

691 Seminar in Education (3)

Prereq: 35 hrs of perm. Special problems in elementary education, guidance, secondary education and school administration.

695 Thesis (2-10)

Prereq: perm.

711 Techniques of Test Development (3)

Prereq: 510 or perm. Construction of evaluation instruments for research and classroom use, item analysis techniques, tryout, revision and validation of tests.

712 Research in Educational Measurements (4)

Prereq: 510 and 721. Measurement and scaling theory, factor analysis and research in selected measurement topics.

720 Educational Statistics I (5)

Tabulation and graphical representation of frequency tables, measures of central tendency, percentiles and percentile curves, measures of variability, standard scores, normal curve, introduction to sampling theory (large and small samples), testing statistical hypotheses, t-distribution and correlation.

721 Educational Statistics II (5)

Prereq: 720. Chi-square, linear regression and nonlinear relations, partial correlation, multiple correlation and regression, various methods of

correlation, sampling distributions, confidence intervals, simple analysis of variance and covariance. Practice in use of desk calculator and other statistical aids.

722 Advanced Educational Statistics I (4)

Prereq: 721. One-way, two-way and higher dimensional designs, analysis of covariance with a variety of experimental designs. Multivariate analysis of variance and covariance, discriminant functions, canonical correlation and multiple discriminant functions.

723 Advanced Educational Statistics II (4)

Prereq: 721. Various non-parametric statistics used in educational research. Sign test, Kolmogorov-Smirnov tests, test for runs, signed rank test, median test, various tests for comparison for k samples, confidence intervals in non-parametric statistics and tests of independence.

724 Research in Educational Statistics (4)

Prereq: 722. Interpretation of research studies from a statistical viewpoint. Emphasis on examination of research designs that involve statistics. Efficient methods of computation.

731 Computer Science Applications in Education I (3)

Prereq: 720 or perm. Application of data processing and computer science techniques to problems in education.

732 Computer Science Applications in Education (3)

Prereq: 721 and 731 or perm. Matrix manipulation in FORTRAN, subroutines, object time format, computational algorithms, tape and disk storage, storage in common, data packing, matrix mapping and other advanced programming techniques. Optical mark scoring reader, IBM/360 model 20 and unit record equipment applications.

733 Research Design in Education (4)

Prereq: 720 and 721 concurrent. Critical evaluation and development of research studies. Emphasis on development of problems which admit to scientific investigation, statement of hypotheses, definition of terms, problems of sampling, statistical methods and interpretation and generalization of findings.

895 Dissertation (2-15)

Prereq: perm.

Guidance, Counseling and Student Personnel

Programs are offered leading to graduate degrees in elementary school guidance and counseling, secondary school guidance and counseling, community counseling, college counseling, student personnel services in higher education, counselor education, higher education and visiting teacher. Professional preparation in these programs for the master's and doctoral degrees is designed for persons planning to pursue careers in special areas such as elementary school counseling, middle school and junior high school counseling, senior high school counseling, community agency counseling and student personnel work such as admissions, registration, career counseling and placement, cocurricular activities, international student advising, student advising (academic), financial aids, housing and college counseling. The program is flexible enough to include preparation of counselors for settings other than the above that require preparation similar to programs in education. In addition, the PhD degree is offered to

those persons seeking a degree in counselor education. The courses of study leading to degrees in the above areas combine personal growth, theoretical foundations, methodology and practical experience within the areas of choice and are designed for the special emphasis being sought and on the basis of the background being brought to the program by the student.

An undergraduate interested in such work should develop considerable breadth in the behavioral and social sciences. Undergraduate work in education, psychology, sociology and communication is especially useful. For those interested in guidance and counseling at the elementary and secondary levels, the development of a teaching area is still essential in many states for certification purposes.

520 Elementary School Guidance (4)

Prereq: perm. Rationale, scope and nature of elementary school guidance; multiple approaches to provision of guidance services in elementary school with emphasis upon role of elementary school counselors.

521 Counseling, Teaching and the Behavior Change Process (5)

Prereq: 520 or perm. Theories of behavior change process in an educational setting. Application and evaluation of techniques to facilitate and modify behavior which involves child, teacher, parent and counselor in learning and growing process.

522 Vocational Development: Research and Theory (4)

Prereq: 520 or 530 or 540. Vocational development of students in school settings, elementary through college; ways school guidance and counseling services may facilitate vocational development of individual.

530 Foundations of Guidance (4)

Prereq: perm. Philosophy and principles underlying guidance, need for guidance in schools and consideration of major guidance services.

531 Appraisal I (4)

Prereq: 520 or 530 or 540. Concepts of reliability and validity, as applicable to appraising human characteristics, set stage for considering critical role that "clinical judgment" plays in professional helping. Emphasis on basic appraisal techniques, including diagnostic interviewing, observational systems, rating scales, interactional analysis and educational and psychological testing. Testing portion provides introduction to intelligence, achievement, aptitude, perceptual, vocational and personality (objective and projective) measures.

532 Appraisal II (4)

Prereq: 531. Continuation of topics, concepts and techniques presented in Appraisal I; however, emphasis on refinement of applied skills relevant to these issues. Administration, scoring and interpretation of specific tests relevant to each student's area of specialization will be included. Special attention devoted to: intelligence theory and tests (e.g., Stanford-Binet and Wechsler instruments); case data interpretation, and report writing and communication of appraisal results to other professionals.

533 Guidance of the Early Adolescent (4)

Prereq: perm. Essential guidance services as they apply to jr high and middle school populations in facilitating educational progress; study of early adolescent developmental tasks, and application of guidance principles to special problems of this population.

534 Dynamics of the Adolescent (4)

Prereq: 520, 530, 540. Lecturing, discussions and 1-to-1 experiences with adolescent, in order to understand physical and educational, psychological, socialized forms which affect his behavior.

535 Guidance of the Exceptional (4)

Prereq: 520, 530 or 540. Characteristics of individuals with physical and/or mental handicaps, as well as mentally retarded and gifted composing psychological, sociological, educational and vocational problems specific to a certain handicap, by means of leading discussions and off-campus involvement with such individuals.

536 Guidance and Behavioral Aspects of the Culturally Different (4)

Prereq: perm. Educational and personal characteristics of the culturally different. Socio-economic and psychological determinants of their behavior. Aspects of guidance and counseling in dealing with their needs.

537 Information Services (4)

Prereq: 520 or 530 or 540. Collection, evaluation, classification and use of occupational and educational information in guidance and student personnel programs.

540 Dynamics of the Young Adult (4)

Psychological, sociological and educational development of young adult with primary focus on college student and educational setting in which he functions.

541 The Leadership Dilemma (4)

Prereq: 540. Problems of leader/follower, activator/reactor roles of present student personnel workers, various positions of personnel workers and goals of student personnel.

542 Decision Making in Student Personnel (4)

Prereq: 540, 541, perm. Theory and practices of organization and financial management of a comprehensive student affairs program; selection and in-service training of staff members; communication and relationships with total college or university community; procedures for problem solving or decision making in a student affairs program.

550 Guidance and Counseling in Groups (5)

Prereq: 520 or 530 or 540. Exploration of roles of group guidance and group counseling procedures in meeting individual student needs in the educational setting.

551 Group Dynamics, Theory and Research (3)

Prereq: perm. History, theory and techniques of group dynamics. Practical application of research concerning small group behavior; structure, process, product and leadership. Lectures, demonstrations and group observations on and off campus, as well as application to educational and vocational settings.

555 Counseling Theory and Techniques I (5)

Prereq: 520 or 530 or 540. Adlerian, behavior modification, client-centered, co-joint family, rational-emotive, reality, transactional and other theories as they determine counseling process and outcome.

570 Organizational Theory and Techniques in Counseling and Personnel Services (4)

Prereq: 520 or 530 or 540. Emphasis on organization and administrative theories, as derived from behavioral science research. Techniques considered for variety of contexts, including schools, colleges and universities, mental health facilities and social service agencies.

580 Guidance and Counseling in International Dimensions (3)

Prereq: 520, 530 or 540. Guidance and counseling in other countries, problems of Americans and internationals abroad, role of international student adviser and problems of bilingual American minority groups.

600 Counseling Practicum: Elementary (5)

Prereq: perm. (May be taken 3 times for 15 hrs) Supervised counseling and guidance experiences with students in elementary schools and community agencies.

601 Counseling Practicum: Secondary (5)

Prereq: perm. (May be taken 3 times for 15 hrs) Supervised counseling and guidance experiences with students in secondary schools and community agencies.

602 Counseling Practicum: College (5)

Prereq: perm. (May be taken 3 times for 15 hrs) Supervised counseling experiences with students in higher education settings.

603 Practicum in Student Personnel (5)

Prereq: perm. (May be taken 3 times for 15 hrs) Supervised experiences in student personnel offices of the University or of neighboring educational institutions.

610 Field Experience in Guidance, Counseling and Student Personnel Services (2-12)

Prereq: perm. Supervised field work in educational or community setting selected with regard to professional needs and interests of individual student. Student should have a clear idea of type of field experience desired and required setting for the experience before enrollment. Course requirements will include on-site supervision by staff, regularly scheduled on-campus conferences and progress and terminal reports.

620 Reading and Research in Elementary Guidance (1-3)

Prereq: perm. (Can be taken for total of 12 hrs) Study and interpretation of scientific literature on elementary guidance in educational settings. Independent and directed projects.

621 Reading and Research in Secondary Guidance (1-3)

Prereq: perm. (Can be taken for total of 12 hrs) Study and interpretation of scientific literature on secondary guidance in educational settings. Independent and directed projects.

622 Reading and Research in Student Personnel (1-3)

Prereq: perm. (Can be taken for total of 12 hrs) Study and interpretation of scientific literature on student personnel in educational settings. Independent and directed projects.

623 Seminar in Guidance and Counseling (1-3)

Prereq: perm. (Can be taken for total of 12 hrs) Seminar in special topics and projects in guidance, counseling and student personnel.

652 Laboratory: Group Counseling (5)

Prereq: perm. Group experiences as basis for studying problems and process in group behavior change, growth and development. Leadership, techniques in groups.

654 Counseling Theory and Techniques II (5)

Experiential course to give students some basic communications, interview and counseling skills in preparation for counseling practicum.

681 Seminar in Education (3)

Prereq: 35 grad hrs, perm. Student chooses area important to himself, engages in library research, interviews, questionnaires, experimentation, etc. and writes research paper, in which he voices his position. He then defends it before a panel, who examine him on content as well as ideas. Professor acts in advisory capacity.

695 Thesis (2-10)**700 Advanced Counseling Practicum: Elementary (5)**

Prereq: advanced standing, perm. Supervised counseling and consulting experiences for advanced graduate students working within elementary schools and community agencies.

701 Advanced Counseling Practicum: Secondary (5)

Prereq: advanced standing, perm. Supervised counseling and consulting experiences for advanced graduate students working within secondary schools and community agencies.

702 Advanced Counseling Practicum: College (5)

Prereq: advanced standing, perm. Supervised counseling experiences for advanced graduate students working with students in higher education.

720 Advanced Seminar in Guidance, Counseling and Student Personnel (3)

Prereq: advanced standing, perm. (May be taken 3 times for 9 hrs) Doctoral level seminar providing in-depth study of services included in guidance and student personnel profession.

- a. elementary school
- b. secondary school
- c. college and university

722 Vocational Development and Counseling (4)

Prereq: advanced standing, perm. Vocational development, career patterns and theories; guidance and counseling services which facilitate vocational development.

732 Advanced Appraisal (5)

Prereq: 531 and knowledge of normal and abnormal (or exceptional) personality/behavior; 532 recommended. Advanced appraisal techniques reviewed, with particular attention given to personality measures. Both objective and projective techniques considered, and each student expected to develop applied expertise with a method of each type. Actual case appraisals analyzed and critiqued. Integration of data from a variety of appraisal procedures and professional communication of results emphasized.

735 Counseling the Exceptional (4)

Prereq: advanced standing, perm. Characteristics of exceptional individuals in educational settings; development and implementation of guidance and counseling services for the exceptional.

736 Counseling and Behavioral Aspects of the Culturally Different: Advanced (4)

Prereq: advanced standing, perm. Cultural and sociological influences on the culturally different and counseling implications.

741 College Student-Environmental Interactions (4)

Prereq: advanced standing, perm. Characteristics and interactions of college students and college environments. Implications for higher education and student personnel.

750 Practicum in Group (5)

Prereq: perm. (May be taken 3 times for 15 hrs) Advanced studies of group counseling and guidance, theory, procedures and applications. Supervised experiences in group counseling and guidance in educational settings.

755 Counseling Theory: Advanced (5)

Prereq: advanced standing, perm. Counseling theories in depth such as psychoanalytical, client centered, behavioral, gestalt and rational-emotive. Comparison and contrast on philosophical bases, basic concepts, goals, methods, expected outcomes and evaluation.

760 Counselor Education (4)

Prereq: perm. Counselor education and administration of counseling services, theories of supervision, dimensions of supervisory relationships, increasing staff capabilities, in-service training programs and national standards for counselor preparation.

761 Practicum in Counselor Education (5)

Prereq: perm. (Can be taken for total of 15 hrs) Recruitment, supervisory consultative, promotional, in-service training, research management, reporting, evaluative, leadership and regulatory functions in supervision and direction of guidance and pupil personnel programs at local, district and state levels.

762 Legal and Ethical Aspects of Counseling, Community and Personnel Services (4)

Prereq: advanced standing. Law and ethics considered for educational and mental health contexts. Federal, state and local statutes relevant to professional functioning and rights and liabilities of persons receiving guidance, counseling and psychological services considered. Court decisions, critical cases and legislation analyzed and interpreted. Code of Ethics for counselors, psychologists, student personnel workers and social workers reviewed. Guidelines for ethical behavior as professional helper developed.

763 Advanced Practicum in Specially Oriented Personnel Services (5)

Prereq: perm. Doctoral level practicum seminar intended to provide in-depth experience in selected services, personnel programs in a technical school, community and branch college, university setting, agencies and industries.

791 Advanced Seminar I (4)

Prereq: 35 hrs and perm. Preparation of research proposal.

792 Advanced Seminar II (4)

Prereq: 35 hrs and perm. Preparation of research proposal.

793 Advanced Seminar III (4)

Prereq: 35 hrs and perm. Preparation of research proposal.

821 Special Topic Seminar (1)

Prereq: perm. (Can be taken for total of 10 hrs) Interpretation of scientific literature on pupil and student personnel services in educational and related settings. Independent and directed projects.

823 Advanced Readings and Research in Guidance, Counseling and Student Personnel (1-3)

Prereq: advanced standing, perm. (Can be taken for total of 10 hrs) Independent studies and specialized projects for doctoral students in counseling, student personnel, guidance and counselor education.

825 Colloquium (1, max 3)

Prereq: perm. Doctoral level seminars to examine contemporary issues in guidance, counseling, student personnel and counselor education.

852 Advanced Laboratory in Applied Group Dynamics (5)

Prereq: advanced standing, perm. Group experiences as method of studying group growth and dynamics.

895 Dissertation (2-15)

Prereq: perm.

Higher Education**590 Higher Education (4)**

Background and growth of higher education in the U.S. Present status of various types of institutions.

591 Community Colleges and Branch Campuses (4)

Prereq: 590 or perm. Special problems related to administration of community and junior colleges, branch campuses, vocational and technical colleges and adult education programs.

592 Teacher Education (4)

Prereq: perm. Teacher education in the U.S., its history, current status and current issues. For persons planning to teach in colleges and universities which prepare teachers.

690 Seminar: Current Issues in Higher Education (1-9)

Prereq: 590, perm. On-going, up-to-date treatment of significant current developments in higher education.

780 Dynamics of College Teaching (4)

Prereq: perm. College teaching examined as to its meaning, intent, current practice (including observation in university classes) and potential improvement.

781 Directed Experiences in College Instruction (5-10)

Prereq: perm. Individualized program under guidance of instructor or department which would include field study and experience in college teaching.

782 Curriculum Development in Higher Education (4)

Prereq: perm. Critical study of factors and issues involved in curriculum development. Types of curricula and underlying philosophies. Curriculum research and evaluation in higher education.

783 Institutional Research and Self-Study in Higher Education (4)

Prereq: perm. Problems of institutional research office including institutional need and methods of data collection and reporting. Principles of long-range planning. Institutional self-study as it relates to accreditation.

784 Practicum in Higher Education Administration (3-6)

Prereq: perm. Practice in working under supervision in special administrative offices in the university including offices of president, vice presidents, academic deans, business offices, etc.

785 Administration in Higher Education I: Structure and Organization (4)

Prereq: perm. Depth study of internal organizational patterns and structure of a variety of institutions of higher learning. Policy perspectives in higher education.

786 Administration in Higher Education II: Control and Support (4)

Prereq: perm. Principles and problems of finance in higher education. Focus on internal fiscal management as well as on social policies underlying financial support of higher education.

Professional Laboratory Experiences

Professional laboratory experiences for graduate students are designed for the individual student by the director in conference with the student's graduate adviser. The experience is planned as a meaningful extension of the student's prior experience as a teacher, counselor or administrator. In general, undergraduate student teaching is a prerequisite for all graduate level laboratory experiences.

560 Internship in Education (3-9)

Prereq: 9 qtr hrs graduate work in education and perm of graduate adviser and director of student teaching. Teaching certificate and experience for interns in administration and supervision. Internship in school administration, supervision of instruction or classroom teaching for a minimum of 1 qtr, full-time. Following brief period of orientation to school and community, student assumes increasing responsibility under direct supervision of staff member of school system. Student expected to function as classroom teacher with regular supervision, as team member in team-teaching situation or as assistant to administrator or supervisor. Weekly seminar conducted by college staff and public school associates.

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561 Internship in Education (3-9)

Prereq: 9 qtr hrs graduate work in education and perm of graduate adviser and director of student teaching. Continuation of 560. See 560 for description.

570 Supervision of Student Teaching (3-9)

Prereq: teaching certificate and experience. Principles and techniques in supervision of student teaching and other professional laboratory experiences. Designed primarily to prepare public school teachers and college instructors for more effective supervision.

690 Professional Laboratory Studies (3-9)

Special studies based upon direct experience in supervision of student teachers in campus or public school laboratories.

760 Internship in Education (3-9)

Prereq: 9 qtr hrs graduate work in education, perm of graduate adviser and director of student teaching. Teaching certificate and experience for interns in administration and supervision. Internship in school administration, supervision of instruction or classroom teaching for a minimum of 1 qtr, full-time. Following brief period of orientation to school and community, student assumes increasing responsibility under direct supervision of staff member of school system. Student expected to function as classroom teacher with regular supervision, as team member in team-teaching situation or as assistant to administrator or supervisor. Weekly seminar conducted by college staff and public school associates.

761 Internship in Education (3-9)

Prereq: 9 qtr hrs graduate work in education, perm of graduate adviser and director of student teaching. Continuation of 760. See 760 for description.

790 Professional Laboratory Studies (3-9)

Special studies based upon direct experience in supervision of student teachers in campus or public school laboratories.

ENGINEERING AND TECHNOLOGY

Chemical

Civil

Electrical

Industrial and Systems

Mechanical

Programs of graduate study may be formulated with majors in chemical, civil, electrical, industrial and systems or mechanical engineering.

The standard four-year course in engineering or its equivalent, as offered in institutions approved by the Engineers' Council for Professional Development, is a general prerequisite for graduate study. Graduates in science and other fields of engineering, whose programs have included sufficient courses in mathematics, physics, chem-

istry, the humanities and the social sciences, may be accepted as graduate students. Such students must take such undergraduate courses in basic engineering subjects as the staff may require.

Engineering, Chemical

Programs of study and research leading to the MS and PhD degrees are available. A student working toward a PhD will take courses and appropriate work as required to fulfill a program of study determined by the student and his advisory committee. Students working toward the MS are expected to take at least 21 hours in graduate level chemical engineering courses, including 500, 501, 502, 542, 543 and 544. Students interested primarily in material science may substitute 506 for 502.

Students are encouraged to take coursework outside the department in such relevant areas as mathematics, physics, chemistry or other engineering disciplines. All resident graduate students are expected to participate in departmental graduate seminars.

Programs leading to graduate degrees in chemical engineering are available for students who have received bachelor's degrees in other scientific or engineering fields.

500 Applied Chemical Engineering Calculations (3)

Setting up of ordinary and partial differential equations corresponding to chemical engineering situations. Methods available for their solutions including classical, numerical and computer techniques. 3 lec.

501 Advanced Chemical Engineering — Thermodynamics (3)

Chemical engineering processes, pure materials and mixtures. Criteria of equilibrium for homogeneous and heterogeneous systems. Correlation and estimation of properties; thermodynamic consistency tests, and thermodynamics of irreversible processes. 3 lec.

502 Advanced Chemical Engineering — Thermodynamics (3)

Continuation of 501. See 501 for description.

503 Advanced Kinetics (3)

Use of chemical engineering kinetics and principles of similarity and model theory in design and scale-up of reactors, pilot plants and processes. 3 lec.

506 Thermodynamics of Solids I (3)

Interpretation of thermodynamic quantities in atomistic terms with relationship to both ideal and defect structures in crystalline materials. Methods of obtaining thermodynamic data from phase diagrams and determination of phase diagram consistency. 3 lec each.

507 Thermodynamics of Solids II (3)

Prereq: 506. Continuation of 506. See 506 for description.

530 Advanced Metallic Corrosion (3)

Review of basic principles and current theories of stress corrosion and embrittlement, corrosion fatigue and transgranular and intergranular corrosion. Some laboratory work utilizing recent techniques and apparatus. 3 lec.

531 Transformations in Metallic Solids I (3)

Kinetics of reactions in metallic solids; diffusion, eutectoid, bulk and other solid reactions. 3 lec.

534 Theoretical Structural Metallurgy I (3)

Advanced physical metallurgy. More complex atomic arrangements in metals and alloys. Elastic and plastic properties of single and polycrystalline materials including creep, creep recovery and the Bauschinger effect. 3 lec.

540 Process Dynamics (3)

Systems analysis. Use of automatic control in chemical processes. Determination of stability of processes containing feedback. 3 lec.

542 Transport Phenomena (3)

Theoretical basis of development of heat, mass and momentum transfer. Boundary layer theory and comparison with other theoretical and semi-theoretic approaches. 3 lec.

543 Transport Phenomena (3)

Prereq: 542. Continuation of 542. See 542 for description.

544 Transport Phenomena (3)

Prereq: 543. Continuation of 542-543. See 542 for description.

545 Advanced Chemical Engineering Operations (3)

Selected topics from absorption and extraction. Multicomponent, azeotropic and extractive distillation. Non-ideal separation processes. 3 lec.

560 Atmospheric Pollution Control (3)

Prereq: perm. Air pollution from major industries, internal combustion engines, and other sources. Techniques available for measuring particulate and gaseous pollutants in atmosphere and at their sources. Techniques available for control and future possibilities for control of air pollution. Bases for air pollution legislation.

571 The Physical Chemistry of Macromolecules (3)

Prereq: Chem 455 or perm. Structure and behavior of large molecules, both synthetic and natural. 3 lec.

572 Polymer Properties I (3)

Prereq: grad rank in engineering or chemistry. Polymer transitions, morphology or crystalline polymers, crystallization kinetics, effect of morphology on physical properties and methods of altering physical properties. 3 lec.

573 Polymer Properties II (3)

Prereq: grad rank in engineering or chemistry. Orientation and fiber properties, composite materials, time-temperature super-positioning of mechanical properties, thermal stability and stress cracking. Relationship between ultimate properties and possible uses of polymeric materials. 3 lec.

574 Advanced Polymer Engineering I (3)

Prereq: grad rank in engineering. Non-Newtonian and viscoelastic, melt and solution rheology; constitutive equations and fabrication of polymeric materials. 3 lec.

575 Advanced Polymer Engineering II (3)

Prereq: 574. Continuation of 574. See 574 for description. 3 lec.

577 Polymer Synthesis and Properties (3)

Synthesis mechanisms and how these mechanisms, resultant polymers and their properties are interrelated. 3 lec.

681 Research in Chemical Engineering (1-15)

690 Special Topics in Chemical Engineering (1-3)

Advanced study in a particular field of chemical engineering.

691 Readings and Seminar (1)

Assigned readings and special reports in selected areas of chemical engineering theory and practice.

695 Thesis (1-15)

700 Seminar in Engineering Mathematics (1-6)
Advanced study in applied mathematics in chemical engineering. Restricted to small groups, with extensive student participation required.

701 Seminar in Irreversible Thermodynamics (1-6)

Advanced study in thermodynamics with emphasis on irreversible thermodynamics. Restricted to small groups, with extensive student participation required.

703 Engineering Analysis (3)

Application of modern mathematical tools such as tensor calculus, matrix analysis, functional approximations, iterative methods, asymptotic approximations and special function theory to problems in major fields of engineering. Mathematical modeling, alternative methods of approach to solution and interpretation of results. 3 lec.

704 Engineering Analysis (3)

Prereq: 703. Continuation of 703. See 703 for description.

705 Engineering Analysis (3)

Prereq: 704. Continuation of 703-704. See 703 for description.

706 Seminar in Statistical Thermodynamics (3)

Advanced study in thermodynamics with emphasis on statistical thermodynamics. Restricted to small groups, with extensive student participation required.

709 Seminar in Reactor Kinetics (3)

Advanced study in chemical engineering reactor kinetics. Restricted to small groups, with extensive student participation required.

730 Seminar in Corrosion (1-3)

Advanced study in corrosion. Restricted to small groups, with extensive student participation required.

734 Seminar in Metal Physics (3)

Advanced study in theoretical metallurgy with emphasis on physics. Restricted to small groups, with extensive student participation required.

740 Seminar in Process Dynamics (3)

Advanced study in chemical engineering process dynamics. Restricted to small groups, with extensive student participation required.

741 Seminar in Control Theory (1-3)

Advanced study in analog, hybrid and digital computer control theory. Restricted to small groups, with extensive student participation required.

742 Seminar in Transport Phenomena (1-6)

Advanced study in transport phenomena. Restricted to small groups, with extensive student participation required.

750 Seminar in Physical Ceramics (1-3)

Advanced study in materials engineering with emphasis on physical ceramics. Restricted to small groups, with extensive student participation required.

760 Seminar in Composite Materials (arranged)
Prereq: 573. Advanced study in materials engineering with emphasis on structure and processibility of composite materials. Restricted to small groups, with extensive student participation required.

771 Seminar in Polymer Chemistry (arranged)

Prereq: 571, 575 and 577. Advanced study in polymeric materials with emphasis on polymer chemistry. Restricted to small groups, with extensive student participation required.

889 Independent Study in Fundamental Chemical Engineering (1-6)

Intensive study in a specified area.

890 Independent Study in Materials Engineering (1-6)

Independent study in a specified area.

891 Colloquium in Fundamental Chemical Engineering (1-3)

Series of advanced lectures, primarily by internationally known speakers outside the University, on topics in field of chemical engineering, with discussion moderated by speaker.

892 Colloquium in Materials Engineering (1-3)

Series of advanced lectures, primarily by internationally known speakers outside University, on topics in field of materials engineering, with discussion moderated by speaker.

893 Practicum for Teaching Assistants (1-3)

Prereq: teaching assistant. Introduction to laboratory procedures for teaching assistants. Required of all incoming teaching assistants.

894 Research (1-15)

Doctoral level.

895 Dissertation (1-15)

Engineering, Civil

In civil engineering a master of science degree may be earned in the fields of fluid mechanics, solid mechanics, soil engineering, sanitary engineering, structures or transportation. Certain related courses offered by other departments can count toward the major requirements, for example: various courses in mechanical engineering or mathematics can be included as part of a major in mechanics and selected courses in chemistry or bacteriology can be considered as part of the major study in sanitary engineering. Some study outside of the department, but in related fields, is encouraged for all students. Forty-five quarter hours are required for the master's degree. Of these 45 credits, eight to 15 hours may be allowed for a thesis, but the writing of the thesis is optional. A student, in consultation with an adviser, arranges his own program to suit his needs and to satisfy the requirements of the Civil Engineering Department.

515 Photogrammetry (3)

Prereq: perm. (winter). Equipment and methods used in aerial photography and land measurement. 2 lec, 2 lab.

523 Continuum Mechanics (4)

Prereq: perm. (spring). Matrix methods in mechanics and structures; law of dynamics; mechanical properties of solids and fluids; basic theories of continuum mechanics. 4 lec.

524 Strength of Materials II (3)

Prereq: perm. (fall). Theories of failure, unsymmetrical bending, shear center and other topics not covered thoroughly in undergraduate course. For nonmajors in civil engineering. 3 lec.

525 Advanced Strength of Materials (4)

Prereq: perm. (fall). Advanced treatment of theories of failure, stresses and strains at a point, cross shear, unsymmetrical bending, curved beams, torsion, thick-walled cylinders, energy methods. 4 lec.

526 Theory of Stability (3)

Prereq: perm. (winter). Buckling of columns, beam columns, plates and rings. 3 lec.

527 Experimental Stress Analysis (3)

Prereq: 524 or 525. (fall). Elasticity theory; theory and use of mechanical, electrical and other strain-measuring devices including photoelastic equipment. 2 lec, 3 lab.

528 Theory of Elasticity and Applications (3)

Prereq: perm. (winter). Equations of equilibrium and compatibility; stresses and strains in beams, curved members, thick cylinders, torsion and structural members.

529 Mathematical Theory of Elasticity (3)

Prereq: 528. (spring). Fundamental equations and problems of elasticity theory; methods of stress functions and displacement potentials; finite element applications.

535 Advanced Structural Theory I (4)

Prereq: perm. (fall). Analysis of indeterminate structures by both classical and modern methods. Analysis of multistory bents, arches, closed rings and frames with variable cross-sections. Plastic theory and design. 4 lec.

536 Advanced Structural Theory II (4)

Prereq: 535. (winter). Continuation of 535, relaxation methods, matrix methods, shell structures. 4 lec.

537 Advanced Structural Design (4)

Prereq: 536. (spring). Modern design concepts and principles as applied to various construction materials. 4 lec.

542 Applied Hydraulics (3)

Prereq: perm. (spring). For nonmajors in civil engineering. Flow and pressure distribution in multi-loop networks, dynamics of flow in pumps and turbines. Uniform and nonuniform flow in open channels, culvert hydraulics, hydraulic transients. 2 lec, 2 lab.

543 Open Channel Hydraulics (3)

Prereq: perm. (spring). Principles of uniform and varied flow. Channel design for uniform flow, gradually varied flow profiles, channel transitions, hydraulic jumps, flow in prismatic and nonprismatic channels. 3 lec.

546 Potential Flow Theory (3)

Prereq: perm. (fall). Inviscid flow theory. General equations of fluid mechanics, study of potential flows. 3 lec.

547 Viscous Flow Theory (3)

Prereq: perm. (winter). Mechanics of fluid resistance, laminar and turbulent flow, applications to external boundary layer flow and to flow in ducts. 3 lec.

555 Advanced Water Treatment (4)

Prereq: perm. (winter). Advanced study of theory. Design of treatment units. Practice in control methods. 3 lec, 3 lab.

556 Advanced Waste Water Treatment (4)

Prereq: perm. (spring). Advanced study of theory. Design of treatment units. Practice in control methods. 3 lec, 3 lab.

558 Water Quality Engineering (3)

Prereq: perm. (spring). Natural and man-made characteristics of water quality, changes in quality resulting from use, criteria for control of stream pollution, methods of improving water quality, legal and economic aspects.

562 Traffic Engineering (3)

Prereq: perm. (winter). Vehicle and driver characteristics, uses of traffic control devices, intersection design and capacity, parking characteristics. For nonmajors in civil engineering. 2 lec, 2 lab.

563 Traffic Parameters (4)

Prereq: perm. (fall). Vehicle-highway relationships, including vehicle performance and highway geometry; highway capacities and their influence on design.

564 Transportation Data Methods (4)

Prereq: perm. (winter). Introduction to traffic survey methods, data collection, evaluation. Topics include origin-destination, speed, parking, accident and future development studies.

565 Traffic Regulations and Controls (4)

Prereq: 563 or perm. (spring). Typical traffic ordinances and regulations and their utilization to control traffic through use of signs, markings, control devices, traffic signals including their use as single units or as a progressive series.

567 Traffic Studies I (1-4)

Prereq: 564. (spring). Practical problems relating to traffic surveys and data analysis.

568 Traffic Studies II (1-4)

Prereq: 565 or perm. (winter). Practical problems relating to vehicular characteristics and traffic movements.

570 Soil Engineering (4)

Prereq: perm. (winter). For nonmajors in civil engineering. Soil composition, physical and chemical properties and classifications. Water movement and seepage problems; stress distribution, settlement and shear strength. Applications to earth structures, retaining walls, foundations and slope stability. 3 lec, 2 lab.

572 Soil Mechanics I (3)

Prereq: perm. (fall). Water movement through soil, construction and interpretation of flow nets. Elastic equilibrium, stress distribution, consolidation theories and settlement. 3 lec.

573 Soil Mechanics II (3)

Prereq: 572. (winter). Shearing strength. Plastic equilibrium, bearing capacity, lateral soil pressures and slope stability. 3 lec.

574 Advanced Soil Mechanics Laboratory (1)

Prereq: 572, 573. (spring). Techniques of soil mechanics measurements, shear tests, pore pressure, volume change. Consolidation, permeability and capillarity; model tests. 3 lab.

575 Advanced Foundation Engineering (3)

Prereq: 572, 573. (spring). Substructure analysis and design to meet various soil conditions. Settlements and bearing capacity analysis of various types of foundations and retaining structures. Case studies. 3 lec.

576 Soil Stabilization (4)

Prereq: perm. (fall). Engineering, geological and pedological soil classification systems. Mineralogy of clay minerals and clay-water systems; requirements for and factors affecting soil stability. Methods and mechanisms of soil stabilization; design and testing stabilized soils. 3 lec, 3 lab.

582 Paving Materials and Mixtures (3)

Prereq: perm. (winter). Types, constituents, chemical behavior, tests, specifications and uses of bituminous materials, Portland cements and aggregates in pavements. Design and manufacture of paving mixtures and construction of pavements. 2 lec, 3 lab.

583 Principles of Pavement Design (3)

Prereq: perm. (spring). Fundamentals of wheel loads and stresses in pavements. Properties in pavement components and design tests. Design methods and evaluations. 3 lec.

590 Special Investigations (1-5)

Prereq: perm. Special investigations or problems not covered by formal courses and not requiring a thesis.

694 Research (1-6)

Prereq: perm. For thesis.

695 Thesis (1-15)

Engineering, Electrical

Graduate study leading to both the master's degree and the doctorate is offered in electrical engineering. Prospective students for these degrees should have completed the requirements for a baccalaureate degree with a major in electrical engineering. Students who lack such preparation are expected to make up deficiencies in addition to the normal graduate program of courses.

Courses in related fields may be included in the graduate program, as for example, chemistry, physics, mathematics and other branches of engineering. The graduate program of study is individually planned for each student after a careful review of his experience and education.

505 Semiconductor Principles (3)

(winter). Simplified 1-dimensional band theory of solids. Valence and conduction band occupancy from Fermi-Diuc statistics. Hole conduction and doping. Derivation of PN junction volt-amp-temperature characteristic. DC and AC characteristics of junction transistors derived from fundamentals.

506 Advanced Electronic Circuits I (3)

Prereq: perm. (fall). Introduction to design and applications of linear integrated electronic systems. Operational amplifiers, differential amplifiers with applications in transfer function synthesis using RC active synthesis. Communications devices including amplification, modulation, mixing and detection systems using integrated devices.

507 Advanced Electronic Circuits II (3)

Prereq: perm. (winter). Large signal switching circuits. Pulse and digital circuits used in logic systems. Memories, shift registers, counters, decoders, interfaces and elementary timing devices.

508 Advanced Electronic Circuits III (3)

Prereq: 506, 507. (spring). Analysis of electronic systems which are not strictly linear. Analysis and stabilization of oscillators and timing circuits using describing function techniques and phase plane analysis. Parametric amplifiers and other low noise amplifiers. Voltage controlled oscillators and phase locked loops. Large signal amplifiers.

509 Solid State Instrument Design (3)

Prereq: perm. Electronic instruments and instrument subassemblies including amplifiers, waveform generators, oscilloscopes, TVMs, etc., using various solid state devices, such as diodes, transistors, unijunctions, FETs and integrated circuits. Term paper exploring latest development on selected topic presented and defended by student.

511 Network Synthesis I (3)

Prereq: perm. (fall). Theory of network design. Positive real functions, synthesis of general passive 1-port, approximation, parts of network functions.

512 Network Synthesis II (3)

Prereq: 511. (winter). Continuation of 511. Properties of 2-port functions, realization of 2-ports with 2 kinds of elements, insertion-loss synthesis, approximation, filter design.

513 Network Synthesis III (3)

Prereq: 511 and 512. (spring). Theory and design of active networks. Topics such as active nonreciprocal network elements, synthesis of active RC 1-ports, synthesis of 2-ports containing R, C and negative resistors, synthesis of active RC networks with controlled sources and design of negative-resistance amplifiers.

525 Automatic Control I (3)

Prereq: perm. (fall). Formulation of linear models for lumped-parameter physical systems; z-transform theory; fundamental principles of closed-loop

discrete and continuous control, signal flow graph representation of discrete and continuous system equations; Routh-Hurwitz and Jury stability criteria; time domain performance specifications. Special problem required

526 Automatic Control II (3)

Prereq: 525 or perm. (winter). Root locus, cascade and feedback compensation; Nyquist stability criterion; Bode plots and Nichols charts, frequency domain performance specifications, plant identification, minimal prototype design; analog and digital computer-aided design of discrete and continuous control systems. Special problem required.

527 Automatic Control III (3)

Prereq: 526 or perm. (spring). State variable theory for discrete and continuous systems; controllability and observability; integral performance criteria; basic optimal control theory. Special problem required.

530 Theory of Measurements (3)

Prereq: perm. Dynamics of D.C. instruments, dynamics of A.C. instruments, null measurement techniques; statistical errors, mechanical and magnetic measurements. Assignments for high precision laboratory measurements and error analysis. Special assigned topics for report.

540 Microwave Theory and Devices (3)

Prereq: perm. (fall). Generation and transmission of electromagnetic energy above 30 MHz, discussion of klystrons, magnetrons, solid-state sources, waveguides and resonators including lab demonstration and experiments.

541 Antennas (3)

Prereq: perm. (winter). Theory of radiating structures, analysis and synthesis of arrays, impedance, radiation patterns, gains and discussion of selected practical examples.

542 Radar, Navigation and Modern Electronic Systems (3)

Prereq: perm. (spring). Radar system fundamentals, detection problem, antenna considerations including planar arrays, propagation effects, ambiguity function, signal processing techniques including range gates, pulse doppler, 'chirp' pulse compression, MTI and synthetic apertures. Radio navigation fundamentals including hyperbolic, range-range and angle-angle methods. OMEGA, LORAN and satellite systems and their signal processing. Phase-locked loops, parameter estimation, CEP, radiated power requirements, and geometrical considerations.

543 Electromagnetics I (3)

Prereq: perm. (fall). Mathematical review of vector operations in Cartesian and curvilinear coordinates. Solution of wave equation in Cartesian coordinates and application to wave reflection from interfaces between general media. Decomposition of wave solutions into TE, TM and TEM waves, with application to waveguides and transmission lines; solution of wave equation in cylindrical coordinates, with application to circular waveguide radiation from line sources and scattering from cylindrical objects.

550 Control of Electrical Machinery (3)

Prereq: perm. Magnetic and electronic motor controllers including study of control theory and application to given problems.

551 Symmetrical Components (3)

Prereq: perm. (winter). Circuits analysis by symmetrical components, representation of unbalanced polyphase currents and voltages by component symmetrical sets, solutions of faults on power systems, unbalanced operation of power equipment, single phase induction motor analysis.

552 Power Transmission (3)

Prereq: perm. (fall). Economic and electrical principles of electrical power lines, mechanical principles of transmission line design.

553 Power Distribution (3)

Prereq: perm. (spring). Fault current calculations and automatic fault isolation on a coordinated distribution system, study of relays, reclosers, sectionalizers and fuse coordination, load and voltage studies of distribution, radial and network systems.

554 Electrical Design (3)

Prereq: perm. Design relationship of electrical machinery, including design of machine and predetermined of its performance.

555 Central Station Design (3)

Prereq: perm. Application of economic principles to problems of loading, load sharing and design of electrical power central stations. Detailed cost analysis of specified problem required.

558 Power System Stability Studies (3)

Prereq: perm. (spring). Problems pertaining to stability of large power systems, both synchronous and asynchronous loadings, maximum use of digital computer techniques and matrix algebra. Each student will present paper on individually assigned problems.

560 Hybrid Computation and Digital Simulation (3)

Solutions of problems on analog/digital computers and on analog computers with programmable logic. Digital simulation languages. Solutions of engineering problems by digital simulation.

561 Digital Systems I (3)

(fall). Postulates and fundamental theorems of Boolean algebra; algebraic and map methods for design of combinational logic and simple sequential circuits; logic minimization methods; introduction to system design using shift registers, counters, etc.

562 Digital Systems II (3)

Prereq: 561. (winter). Basic concepts from theory of finite-state machines; analysis and synthesis of sequential circuits; study of state assignment; synchronous and asynchronous machines; system design using integrated circuit registers, counters, etc.

563 Digital Computer Design (3)

Prereq: 562. (spring). Functional organization of digital computers for control and data processing, definition of functional characteristics of subsystems, study of current computer component technology. Several types of machines designed in varying degrees of detail.

570 Communication Engineering (3)

Prereq: perm. (fall). Unified approach to communications stressing principles common to all transmission systems. Review of Fourier series. Fourier integral and complex frequency techniques with emphasis on communication networks, time response and convolution, measurement of information, amplitude modulation (double and single sideband techniques), frequency modulation, sampling theory, pulse modulation systems, fundamentals of random signal theory and its application to communication systems, noise and its effect on conventional modulation systems; noise figure, noise suppression techniques and other related topics.

571 Statistical Analysis (3)

Prereq: perm. (winter). Analysis of engineering problems using probabilistic and statistical concepts; probability, discrete and continuous random variables, distribution functions, means, moments, characteristic functions, statistical independence, correlation, estimation and applications to engineering problems.

572 Random Signals in Linear Systems (3)

Prereq: perm. (spring). Introduction to random electrical signals and noise. Autocorrelation, cross-correlation, power spectra, Nth law detectors, matched filters, detection of signals in noise, optimum receivers, Bayes estimators.

588 Analysis of Engineering Problems (3)

Prereq: perm. Basic philosophy, methodology and viewpoint developed for solution determination. Comparison of applicability of empirical and theoretical analytical techniques to both linear and nonlinear situations. Characterization via mathematical models utilized for problem synthesis. Trade-off studies as practical technique for parameter value selection and influence-effect relationships.

590 Special Topics (1-6)

Prereq: perm. Provides structure whereby students and faculty may study current topics or topics of special interest before formal courses have been established for these areas.

590A Space Communications (3)

Prereq: perm. (upon sufficient demand). Communications links with examples taken from space applications. Includes considerations of data encoding, modulation technique, antenna gains, space loss, system noise and demodulation techniques.

590F Topics in Space Science (3)

Prereq: perm. (upon sufficient demand). Introduction to topics in solar system space science and astrophysics. Remote and direct sensing techniques, instrumentation and data analysis. Specific topics include: large aperture antennas, radiometers, radio wave propagation in atmospheres and ionospheres, thermal and nonthermal radiation mechanisms, elements of data acquisition and processing, parameter estimation and interaction and generation of radio waves in solar system.

590H Propagation of Radio Waves (3)

Prereq: perm. (upon sufficient demand). Review of fundamentals of electromagnetic waves, ground wave propagation, surface wave, wave propagation in ferrites, properties of ionosphere and sky-wave propagation.

590I Introduction to Plasma Dynamics (3)

Prereq: perm. (upon sufficient demand). Review of electromagnetic theory, motion of charged particles in given electromagnetic fields. Magneto-ionic theory, propagation and excitation of waves in plasma.

610 Advanced Combinational Circuits (3)

Prereq: perm. Symmetric and threshold functions; unilateral and bilateral iterative networks; Boolean matrices for gate and contact systems; computer algorithms for minimization of functions; selected topics.

611 Advanced Sequential Circuits (3)

Prereq: perm. Decomposition theory for series, parallel, etc., decompositions; theory and applications of regular expressions for design; machine realization using shift registers; selected topics.

612 Automata Theory (3)

Prereq: perm. Fundamental concepts of automata theory; Turing machines; push-down automata; relations between automata theory and mathematical linguistics.

616 Linear Network Theory I (3)

Provides background for other graduate courses. Topics such as elementary network topology; general formulation of loop, node and cut equations; the indefinite admittance and impedance matrices; state equations and their solutions; passivity, activity, generativity and stability of active multiports and their characterizations. (Recommended for all graduate students).

617 Linear Network Theory II (3)

Prereq: perm. Complex normalized scattering matrix. Broadband limitations on network performance. Theory of broadband matching and design of equalizers. Theory of negative-resistance amplifiers.

623 Nonlinear Analytical Techniques (3)

Prereq: perm. Dynamic systems-use and limitations of phase plane portraits in characterization of nonlinear components and nonlinear activation. Nonlinear phenomena and classification of singularities. Role of forcing function. Solutions found through methods of residues and variation of parameters. Selection process as means for decision making in problem solution; influence of selected criteria. Applications to networks, controlled systems and optimal control systems. Problems and techniques of Poincaré, Liénard and others. Systems with analytical solutions. Linearization techniques and error-tolerance determination.

645 Electromagnetics II (3)

Prereq: 543. Cartesian tensors, theory and application to ionospheric propagation and gyromagnetic media. Maxwell stress tensor with application to motors. General radiation in terms of retarded current and its time derivative, with applications. Equivalence theorem and applications.

646 Electromagnetics III (3)

Prereq: 645. Wave propagation in anisotropic medium; special theory of relativity; electrodynamics of moving media; perturbational and variational techniques.

660 Digital Circuitry (3)

Prereq: 563. Physical theory of bipolar and MOS integrated circuits; study of properties of TTL, MOS, CMOS and ECL circuits; dynamic and static semiconductor memories; design of integrated circuit chips; system design using LSI modules.

671 Fundamentals of Statistical Communication Theory (3)

Prereq: 571. Analysis of nondeterministic signals in linear systems. Topics include probability density, correlation, spectral density, noise and gaussian random process; optimum linear systems, smoothing and prediction of stationary inputs, matched filter and other topics; envelope detection in presence of noise and introduction to statistical detection of signals; fundamental ideas of information theory. Individual problems to illustrate applications of statistical concepts in communication systems.

674 Information Transmission (3)

Prereq: 571. Definition of measure of information and study of its properties, efficient representation of discrete message sources, communication channels and their capacity, encoding and decoding of data for transmission over noisy channels and evaluation of bounds to probability of decoding errors, and algebraic theory of error correcting codes.

675 Introduction to Plasma Dynamics (3)

Prereq: 543. Particle orbit theory, magnetohydrodynamics, waves in cold plasmas, waves in warm plasmas.

681 Research in Electrical Engineering (1-6)

Prereq: perm.

690 State Variable Analysis (3)

Prereq: perm. Provides background for other courses. Introduction to state variable vector-matrix differential/difference equations for linear and nonlinear continuous (discrete) systems, processes, etc., solution of state variable equations, flow graphs; transformations, stability concepts, controllability and observability; analysis of nonlinear systems using state variable methods.

695 Thesis (1-9)

Prereq: perm.

698 Seminar (0)**718 Network Topology (3)**

Prereq: 616. Fundamental concepts in linear graph theory, matrix representation of linear graphs, properties of incidence, circuit and cut-set matrices, concept of duality, derivation of topological formulae for linear lumped networks, application to analysis and synthesis of communication nets.

721 Multiport Synthesis (3)

Prereq: 511, 512. Positive-real and bounded-real matrices. Synthesis of lossless n-ports. Synthesis of n-ports with prescribed admittance matrix. Scattering synthesis.

772 Modulations Systems (3)

Prereq: 671. Performance of familiar communication systems within context of statistical concepts and random noise representations, correlation and spectra analysis and narrow band noise, linear modulation, synchronous demodulation, suppressed carrier techniques, angle modulation, noise in FM, threshold effects in FM, frequency division, multiplexing, correlation detection, coherent binary signaling, coherent phase-reversal keying, differential phase-shift keying, optimum detection and decision theory. Individual problems associated with state of art techniques.

773 Digital Detection Systems (3)

Prereq: 671 or perm. Detection of digital signals using decision theory concepts, conventional and unconventional communication systems, channel characteristics, Hilbert transforms, signal space representations, optimum detection of known signals, detection of signals with finite number of unknown parameters, estimation, estimator-correlator receivers, adaptive type receivers and sub-optimum receivers. Techniques and problems from current literature.

776 Advanced Plasma Dynamics I (3)

Prereq: 675. Distribution function and Boltzmann equation, transport equation, BV equation and relaxation model. Landau damping, kinetic treatment of waves in plasmas.

777 Advanced Plasma Dynamics II (3)

Prereq: 675, 776. Continuation of 776. Boltzmann collision term, Chapman-Enskog expansion, BBKY equations for plasma, confinement and stability.

778 Boundary Value Problems I (3)

Prereq: perm. Partial differential equations derived from engineering problems. Topics include linear spaces and operators, eigenvalue and eigenfunctions, Sturm-Liouville systems and Orthogonal functions, separation of variables in special coordinate systems, generalized Fourier series and integrals.

779 Boundary Value Problems II (3)

Prereq: perm. Techniques for solving boundary value problems. Green's functions and generalized functions, special methods making use of symmetries, images, inversion and conformal mapping; introduction to integral equation method.

791 Control System Optimization I (3)

Prereq: 690. Extrema of functions of several variables, constrained extrema problems, linear programming, variational calculus, Euler-Lagrange equations and transversality conditions, maximum principle of Pontryagin, Hamilton-Jacobi theory. Design of optimal linear regulators and tracking systems with respect to quadratic performance criteria, matrix Riccati equation approach. Application of theory to minimum time and minimum fuel problems; design of time- and fuel-optimal systems using switch curves and switch surfaces.

792 Control System Optimization II (3)

Prereq: 791. Continuation of 791. Sensitivity in optimal systems, computational algorithms for solution of optimization problems. Introduction to Wiener-Kalman-Bucy filter theory. Differential game theory.

793 Stability Theory (3)

Prereq: 690. Definition of equilibrium points; phase plane analysis; limitations of linear analysis. Concepts of stability, asymptotic stability, global asymptotic stability. Use of Liapunov functions and contraction arguments in establishing stability criteria. Methods of Lure, Lagrange, Popov, Sandberg, etc. Determination of stability of linear time invariant, linear time varying and nonlinear systems.

794 Adaptive, Learning and Self-Organizing Systems (3)

Prereq: perm. Fundamental concepts underlying adaptive, learning and self-organizing systems. System identification, use of gradient methods, peak-holding systems, application of adaptive principle to autopilot and communication systems. Pattern recognition, discriminant functions, training in classifiers, statistical classification, feature selection and ordering, nonparametric procedure, Bayesian learning, stochastic approximation.

795 Stochastic Control Systems (3)

Prereq: 690. Characterization of random processes, identification of signals, parameter and random variable estimation, stochastic optimal control problem, dynamics of stochastic systems, stochastic finite-state machines, stochastic discrete-time systems, stochastic continuous-time systems, Markov systems.

819 Theory of Graphs I (3)

Prereq: Math 510. Fundamental topics of graph theory such as connectedness, path problems, leaves and lobes, axiom of choice, matching theorems, directed graphs, acyclic graphs and partial order.

820 Theory of Graphs II (3)

Prereq: 819. Continuation of 819. Binary relations and Galois correspondences, connecting paths, dominating sets, covering sets and independent sets, chromatic graphs and groups and graphs.

844 Advanced Microwave Networks (3)

Prereq: perm. Analytical study of waveguide junctions. Impedance, admittance and scattering matrices formulations for waveguide, junctions, eigenvalue problems, symmetrical devices and directional coupler, group theory and its applications to waveguide junctions.

845 Computer Solutions of Electromagnetic Problems (3)

Prereq: perm. General techniques of solutions suitable for digital computation and their application to electromagnetic field problems of practical interest, matrix formulation of field problems, wire antennas and scatters, generalized network parameters, Galerkins method, Rayleigh-Ritz variational method.

846 Special Topics in Engineering Mathematics (3)

Prereq: perm. Concentrated study of advanced mathematical techniques in analytical solution of engineering problems. Selected topics from recent and/or classical literature of applied mathematics, as integral equations, variational and perturbational methods, applications of theory of functions of complex variables. Introduction to functional analysis.

881 Doctoral Research (1-9)

Prereq: perm.

890 Special Topics in Electrical Engineering (3)

Current developments in electrical engineering. Selected topics offered yearly. May be taken for repetitive and variable credit.

895 Dissertation (1-9)

Prereq: perm.

Engineering, Industrial and Systems

The master of science program in industrial and systems engineering is fitted to the goals of the individual student. Course concentrations are available in behavior systems, computer systems, general systems, industrial systems and operations research.

The courses may be selected from engineering, the physical sciences, business administration or other approved disciplines. The specific program is designed by the student and his adviser. At least 27 quarter hours must be selected from graduate level courses in industrial and systems engineering, including at least one course from four of the five areas of concentration. The following list of ISE courses will meet this requirement:

Behavior Systems	Computer Systems	General Systems	Industrial Systems	Operations Research
547	527	515	532	510
548	528	520	534	511
549	533	521	535	531
551	537	524	540	541
552	538	525	542	544
553	539	567	543	561
554	565	570	632	562
555	637	571	670	563
556		572		564
557		573		
		635		

The usual minimum requirements are 39 or more quarter hours of coursework and up to six quarter hours of thesis research credit totalling 45 quarter hours for the thesis option.

The student may follow a nonthesis option. The minimum requirements for this program are 51 hours of coursework including a three-credit-hour research project requiring independent study (694) and a written report. For the nonthesis option, at least 33 quarter hours must be selected from graduate level courses in industrial and systems engineering. Students following the nonthesis option are required to file a program of study for the approval of the departmental nonthesis adviser before the end of the first quarter of study.

Applicants with baccalaureate degrees from accredited engineering colleges and other related fields will be considered for admission to the MS program in industrial and systems engineering. Students are expected to have had a course in statistics based on calculus and a course in computer programming (FORTRAN) or the equivalent. Applicants entering the industrial and systems engineering program without an adequate mathematics background may be required to take up to 18 hours of undergraduate work.

Certain undergraduate-graduate courses are required in the undergraduate industrial and systems engineering program. Up to 12 hours of these courses may be taken for graduate credit subject to adviser approval. They are: 506, 520, 532, 533, 535, 540, 541 and 548. Up to three hours of independent study may be taken for degree credit in addition to 694 or 695. All resident graduate students are expected to register for three successive

quarters of 610 (Seminar) beginning with their first quarter in residence.

505 Engineering Statistics I (3)

Prereq: perm. (summer, fall, winter, spring). Application of probability and statistics to evaluation of experimental data. Introduction to testing of hypotheses, confidence intervals and statistical prediction. (Not for graduate credit for ISE majors.) 3 lec.

506 Engineering Statistics II (3)

Prereq: perm. (winter, spring). Evaluation of numerous probability distribution functions for discrete and continuous random variables as useful experimental engineering tools. Multiple linear and nonlinear regression models for experimental systems. 3 lec.

507 Engineering Statistics III (3)

Prereq: perm. (spring). Design and analysis of engineering experiments approached from linear statistical model point of view. Blocking designs, full and fractional factorial designs, analysis of variance and introduction to response surface methodology. 3 lec.

510 Decision Theory I (3)

Prereq: 405, 430, Math 263C. Introduction to decision theory and its applications. Modern utility theory and its application to decision making under risk is emphasized. Examples selected from inventory, bidding, purchasing, maintenance and investment policies.

511 Decision Theory II (3)

Prereq: 410. Basic theory and applications of Bayesian decision theory. Emphasis on applications covering a wide range of both profit and nonprofit oriented institutions in society.

515 Introduction to Systems Engineering (3)

Systems engineering techniques and related topics. 3 lec.

517 Analytical Foundations of Industrial and Systems Engineering (3)

Prereq: 405, Math 263C. Special analytical techniques introduced for solution of complex industrial and system engineering problems. Calculus of finite differences, Fourier analysis and use of transform techniques in linear system analysis; probability implications of transforms.

520 Analysis of Engineering Situations I (3)

Prereq: perm. Basic philosophy, methodology and viewpoint for problem definition and solution. Comparison of tools, mathematical and empirical, for problems with bounding conditions, role of engineering judgement. 3 lec.

521 Analysis of Engineering Situations II (3)

Continuation of 520. See 520 for description.

524 Nonlinear Analytical Techniques (3)

Prereq: 520, 521 or perm. Nonlinear phenomena and classification of singularities. Role of forcing function. Solutions found through methods of residues and variation of parameters. Applications to adaptive controlled systems and optimal controlled systems and other organized structures. 3 lec.

525 Probabilistic System Analysis (4)

Prereq: perm. Applied statistical techniques in selective design and evaluation of physical and nonphysical systems. Tolerances, errors and variations in parameters of systems viewed in terms of probabilistic distributions and effects on output parameters. 3 lec, 2 lab.

527 Digital Computer Systems I (3)

Prereq: perm. (fall). Overview of digital computer systems. Programming, storage organization and search, number representations, conversions and elementary arithmetic operations; addressing and instruction sequencing; multiprogramming, multiprocessing and real-time systems.

528 Digital Computer Systems II (3)

Prereq: perm. Continuation of 527. See 527 for description.

530 Engineering Economy (3)

(fall, spring) Economic analysis of engineering projects. Time value of money, cost estimation, equipment comparison, break-even analysis, economic lot size and replacement analysis. (Not for graduate credit for ISE majors.) 3 lec.

531 Advanced Engineering Economy (3)

Prereq: perm. Risk explicitly treated by consideration of uncertainties of cost estimates, forecasting and other economic variables. Construction and use of mathematical models for analysis of engineering alternative. 3 lec.

532 Inventory and Manufacturing Control I (3)

Prereq: perm. (fall, winter). Design of inventory and manufacturing control systems. Forecasting, continuous and periodic review inventory systems. Relationship between production schedules and inventory. Production scheduling systems, sequencing models, dispatching rules. 3 lec.

533 Industrial Computer Applications (3)

Prereq: perm. (fall, spring). Simulation of industrial problems utilizing digital computers and data processing equipment. Stresses user-oriented programs and advanced format techniques. Applications include use of library routines. 2 lec, 2 lab.

534 Network Analysis and Scheduling (3)

Prereq: perm. Engineering project planning using such techniques as PERT and critical path methods. 3 lec.

535 Quality Control and Reliability (3)

Prereq: perm. (fall, spring). Industrial techniques for process control, acceptance sampling by attributes and by variables, inspection and test methods and reliability measurement and improvement. Operating characteristics and design of sampling plans. 3 lec.

537 Modeling and Analysis of Computer Systems (5)

Prereq: perm. Models of batch, time-sharing or real-time computer systems. Simulation, queueing, scheduling methods and probability applied. Colisted with CS 505A.

538 Modeling and Analysis of Computer Systems (5)

Prereq: 537. Continuation of 537. See 537 for description. (Colisted with CS 505B.)

539 Information Systems Engineering (3)

Prereq: perm. Design of industrial information systems. Storage, retrieval and transmission by automatic data processing equipment. 3 lec.

540 Industrial Plant Design (3)

Prereq: perm. (fall, winter). Design process for manufacturing systems. Process planning, equipment selection, jig and fixture design, plant capacity analysis, production scheduling, inventory control, line balancing, plant layout. 2 lec, 2 lab.

541 Introduction to Operations Research (3)

Prereq: perm. Introduction to basic methodology of operations research in solution of industrial, engineering and other problems. Application and mathematical structure of such topics as decision theory, linear programming, dynamic programming, replacement models and queueing theory.

542 Inventory and Manufacturing Control II (3)

Prereq: perm. (spring). Branch and bound scheduling algorithms, horizon planning, control of integrated production, inventory and workforce systems, linear decision rules. 3 lec.

543 Work Design II (3)

Prereq: perm. (spring). Exploration of interaction between industrial and systems engineering and labor as an institution. Arbitration, technological change and work organization. 3 lec.

544 Applications of Mathematical Programming (3)

Prereq: 541. Linear systems techniques for optimum solution of industrial, engineering and other problems. Topics include assignment and transportation problems, simplex method, revised simplex, dual problem and sensitivity analysis. 3 lec.

545 Systems Design (3)

Prereq: 540 or perm. Individual or small-group system design project.

547 Elements of Behavior Systems Engineering (3)

Prereq: perm. (fall). Elements of behavior systems analysis, prediction, design and control. Properties of stimulus-response reflex as behavior system input-output function examined. 3 lec.

548 Man-Machine Systems (3)

Prereq: perm. (fall, winter). Role of human operator as subsystem in complex man-machine system. Optimum design principles for information displays, equipment controls, workplace environments and life-support systems are examined. 3 lec.

549 Behavior Systems Management in Engineering Industry (3)

Prereq: perm. (fall, spring). Principles of behavior systems engineering applied to problems of engineering management. Behavior systems analysis of engineering organization structure and function with respect to problems of prediction, design and control of engineering outputs. 3 lec.

551 Behavior Systems Engineering Design (3)

Advanced problems in behavioral engineering design such as man-machine systems, crew design problems, organization structure analysis, communication and management. Modes of approach and behavior system design solutions are examined. Individual design project. 3 lec.

552 Behavior Systems Engineering Research (3)

Research methods and findings in behavior systems research. Individual research project on selected behavior systems engineering problem. 3 lec.

553 Behavioral Communication Systems in Engineering Industry (3)

Behavioral systems analysis of transmission of meaning in communications systems. Schematic analysis of stimulus-response, input-output operations in information transmittal. 3 lec.

554 Advanced Problems in Man-Machine Systems (3)

Analytic and design consideration of complex man-machine systems with application to industrial, social or governmental systems.

555 Synthetic Behavior Systems (3)

Application of principles of bio-behavior systems analysis to design of physical behavior systems; introduction to robotics. Elements and principles of bio-behavior systems including input-output transfer functions and behavior design principles. Applications for design of physical behavior systems, i.e., synthetic behavior system. 3 lec.

556 Creativity in Engineering Problem-Solving (3)

Behavior systems analysis used to generate an analytic-descriptive approach to creative performance applied to industrial and systems engineering problems. Individual projects. 3 lec.

557 Engineering Decision Processes: Behavior Systems Analysis (3)

Engineering decision processes with reference to elements and principles of behavior systems engineering. Examples drawn from engineering industry. 3 lec.

559 Individual Research Problems in Behavior Systems Engineering (3)**561 Operations Research I (3)**

Prereq: 541. Queueing theory and its applications. Single and multiple channels with various system parameters and queue disciplines. Both steady state and transient conditions are investigated.

562 Operations Research II (3)

Prereq: 541. Theory and application of classical calculus of variation emphasizing Lagrange multipliers and the Kuhn-Tucker conditions, dynamic programming and Markov processes. 3 lec.

563 Operations Research III (3)

Prereq: 544 or perm. (spring). Theory and application of integer programming, convex programming, geometric programming, gradient search methods.

564 Reliability in Design (3)

Application of reliability theory to equipment or facilities design. Design of testing systems and procedures for effective reliability measurement and prediction. Analysis of over-all system reliability as function of component reliability. 3 lec.

565 Information Systems Design (3)

Design and control of information flow in organizations. Information storage and retrieval by data processing equipment. Students practice design of information systems in laboratory. 3 lec.

566 Industrial Sampling Methodology and Design (3)

Prereq: 506, 541 or perm. Designing simple random, systematic and stratified sampling plans for estimating means, variances, correlations or confidence intervals. Applications in sampling for determining parameters in operations research models, for reliability and quality control inspection, or for work sampling and time standards.

567 Environmental Systems Engineering (3)

Prereq: perm. Overview, analysis and design of selected environmental systems. Problems selected from area of conversion, resource engineering, communication, bio-engineering, transportation, pollution, engineering of large structures and engineering of community systems. 3 lec.

570 Fundamentals of Systems Theory and Methodology I (3)

Prereq: 520, 521 or perm. Topics in systems philosophy, methodology and viewpoint and their application to practical systems, systems design process, criteria selection and evaluation; experiments for determining system parameters, inter-dependencies and constraints. 3 lec.

571 Fundamentals of Systems Theory and Methodology II (3)

Prereq: 570. Continuation of 570. See 570 for description.

572 Optimization of Complex Engineering Systems I (3)

Prereq: 571. New techniques for design and evaluation of large-scale complex engineering systems with digital computer studies. Techniques for optimizing information management and energy conversion systems. Examples from modern weapon and aerospace systems. 3 lec.

573 Optimization of Complex Engineering Systems II (3)

Prereq: 572. Continuation of 572. See 572 for description.

583 Work Design (3)

Prereq: 405 or perm. (winter). Design of work systems and measurement of work. Models of work systems, schematic models and charting techniques, work sampling, time study, predetermined time systems, standard data and related industrial tools.

589 Special Investigations (1-6)**590 Advanced Problems in Computer Application (1-6)**

Special investigations of advanced systems and industrial engineering problems involving use of digital or analog computers.

630 Seminar in Industrial and Systems Engineering (1)

Current topics and new developments in industrial and systems engineering.

632 Seminar in the Control of Inventory and Manufacturing Systems (3)

Prereq: 532 or equiv. Critical review of current literature on inventory and manufacturing control. Students present selected papers and class participates in constructive critique. Related research within department included. Representatives of industry invited to present their control systems for critique.

635 Seminar on Systems Applications (3)

Prereq: 515, 570, 571. Topics of general current interest and/or particular student interest. In-depth discussion of topics from lecture courses or current research including techniques for selection and decision-making.

637 Seminar on Computer Systems (1-3)

Prereq: 527, 528, 562 or perm. (spring). Analytic examination of selected topics in computer system planning, design and evaluation. Students present selected papers or their own research and class participates in constructive discussion. Representatives from government, industry or other educational institutions invited to lead discussions on topics of current interest.

640 Advanced Topics in Industrial and Systems Engineering (1-6)

Readings and lectures.

670 Seminar on Occupational Safety and Health (3)

Prereq: perm. Occupational safety and health treated historically outlining development of Workman's Compensation and industrial safety up to most recent federal legislation, 1970 Safety and Health Act. Focus given to specific health and safety problems with a view toward developing engineering and human factors controls.

672 Seminar on Air Transportation Systems (2)

Prereq: 405. Air-traffic control processes and problems in terminal and enroute situations, ground facilities systems analysis and design and other current topics with emphasis on industrial and system engineering approaches to analysis and design. Topic concentration varies from qtr to qtr.

681 Research (1-12)**694 Nonthesis Independent Research (3)**

Prereq: perm.

695 Thesis (1-12)**Engineering, Mechanical**

Graduate areas of concentration include kinematics, vibrations, machine design, engineering mechanics, automatic control, energy conversion, thermal machinery, heat transfer and propulsion. Courses which contribute to contemporary engineering practice may be drawn from related areas.

The minimum requirements are 33 quarter

credits of coursework and a thesis covering a research or an advanced design project. Students with prior professional experience in which research or design proficiency has been clearly established may substitute additional coursework in lieu of the thesis. In such cases, the minimum requirement is 45 quarter credits of coursework, including a report on a special investigation involving three to six quarter credits of effort. For the thesis program the major field should include at least 20 quarter credits. For the nonthesis program 27 credits in the major field are required.

Applicants with a BS in engineering or science are considered for admission. All applicants must demonstrate proficiency in basic undergraduate mechanical engineering subjects. Applicants not holding degrees from accredited engineering colleges may be required to make up deficiencies prescribed by the department and to submit a satisfactory score on the Graduate Record Examination.

502 Fluid Mechanisms and Controls (3)

Prereq: perm. (spring). Fluid mechanics associated with fluid control, survey of flow control devices, fluid amplifier principles, digital logic, analysis and synthesis of fluid control systems.

504 Mechanical Design II (4)

Prereq: 403. (spring). Application of logical methods and approaches used to define engineering problems and design procedures for obtaining solutions in areas such as engineering materials (including residual stresses), design of machine elements, dynamics vibrations, fluid dynamics and thermodynamics. Emphasis on inventiveness, engineering analysis and decision making. 5 lee.

506 Advanced Kinematics (4)

Prereq: perm. 301. Analysis and synthesis of planar and spatial mechanisms. Reading of current literature.

507 Fundamentals of Nuclear Engineering (4)

Prereq: perm. Nuclear engineering, including nuclear reactions, radiation detection and measurement, reactor control, radiation shielding, effects of radiation on materials, uses of radioactive materials.

508 Nonlinear Problems in Dynamics (3)

Prereq: perm. Qualitative and numerical study of mathematics and physics of nonlinear phenomena. Formulations of nonlinear engineering problems and solutions techniques.

509 Advanced Machine Dynamics (3)

Prereq: perm. (spring). Theoretical analysis and applications of dynamical aspects and problems in machines and their components.

510 Advanced Vibrations Analysis (4)

Prereq: 592, perm. (fall). Vibrations of multi-degree-of-freedom, lumped, parameter systems and of continuous systems such as bars, beams and plates; numerical methods of solution; use of Rayleigh-Ritz and Galerkin procedures.

511 Cryogenic and Vacuum Fundamentals (4)

Prereq: perm. (arranged). Production of low temperatures and pressures, molecular transport, diffusion through solids, radiation heat transfer, high-performance insulators, low-temperature heat transfer, 2-phase flow, superconductivity.

512 Heat Transfer (5)

Prereq: 321, CE 340. (fall). Basic concepts of conduction in 1 or more dimensions, steady and transient modes. Radiation, dimensional analysis, fundamentals of convection in various modes, heat exchanger design. 5 lee. *Graduate credit for non-majors mechanical engineering only.*

514 Advanced Heat Transfer (3)

Prereq: CE 546 or perm. (spring). Conduction and convection heat transfer. Hydrodynamic and thermal boundary layers in forced and free convection. 3 lec.

515 Thermal Stress Analysis (3)

Prereq: CE 528, perm. (winter). Thermal stresses developed in machine and structural components. Procedures for solving stress problems associated with elevated temperatures in such components as tubes, rods and plates as encountered in nuclear reactors, engines and airplane and missile structures.

517 Design of Thermal Systems (4)

Prereq: perm. (winter, spring). Design of systems in which thermodynamics and heat and mass transfer are major considerations. Emphasis on total design approach incorporating economic considerations and optimization techniques. Typical systems include power, propulsion, environmental, cryogenic.

518 Mechanical Engineering Experimentation (1)

Prereq: grad rank. (fall). Instruction in experimental procedure and experience in designing and executing laboratory experiments. Students plan and execute their own experiments to acquire answers to assigned problems. Variety of areas covered including control systems, energy conversion, fluid flow, heat transfer, motion measurements, stress-strain. Instructional guidance provided by entire mechanical engineering staff. Provides familiarity with variety of instrumentation and procedures. 3-qtr sequence with experimental subjects phased with prerequisites.

519 Mechanical Engineering Experimentation (1)

Prereq: grad rank. (winter). Continuation of 518. See 518 for description.

520 Mechanical Engineering Experimentation (1)

Prereq: grad rank. (spring). Continuation of 519. See 518 for description.

524 Gas Dynamics I (3)

Prereq: perm, CE 340. (spring). One and 2-dimensional gas dynamics-isentropic flow, flow with heat transfer, friction, shocks, generalized 1-dimensional flow. Applications to propulsion systems. 3 lec.

525 Vehicle Propulsion Systems (4)

Prereq: perm, 424. (spring). Applications of basic engineering disciplines to design and analysis of ground vehicle propulsion systems. Emphasis on new concepts. Extensive use of computer modeling. Term report required.

531 Radiation Heat Transfer (4)

Prereq: perm, 512. Physics of monochromatic and total radiation, surface effects, exchange between diffuse and specular surfaces with and without absorbing media, radiation networks and integral techniques, combined radiation and conduction. 4 lec.

540 Direct Energy Conversion (4)

Prereq: 412, Phys 316, perm. Coupled flows, irreversible thermodynamics, behavior of ionized gases, general principles of unconventional thermodynamics cycles, thermoelectricity, thermionics MHD, fuel cells.

584 Problems in Thermal Machinery I (3)

Prereq: perm, good academic record. (fall). Supervised research in thermal machines. Individual work on experimental or analytical project involving current problems. Students should elect 2-term sequence to allow adequate time for completion of meaningful project.

585 Problems in Thermal Machinery II (3)

Prereq: perm. (winter). Continuation of 584. See 584 for description.

586 Problems in Thermal Machinery III (3)

Prereq: perm. (spring). Continuation of 584 and 585. See 584 for description.

589 Special Investigations (1-6)

Prereq: perm.

591 Mechanical Vibrations I (3)

Prereq: perm. (fall, spring). Characteristic phenomena of mechanical vibrations encountered in machines and structures (of 1-degree-of-freedom) in their quantitative investigation. Simple harmonic motion; free, transient and forced vibrations; application of phase-plane methods; damping effects; mobility methods; analog computation. 2 lec, 2 lab.

592 Mechanical Vibrations II (4)

Prereq: perm, 591. (winter). Application of matrix methods; 2-degree of freedom systems; lumped mass systems with several degrees of freedom, and methods for normal mode determination. 3 lec, 1 computation session.

593 Lubrication and Bearing Analysis (3)

Prereq: perm. (winter, spring). Concepts of boundary, hydrostatic and hydrodynamic lubrication and their application to different bearing geometries. McKee and McKee, Boyd and Raimondi methods of bearing design and their optimization. Solid lubrication, porous and gas bearings. Lubrication and wear in living and artificial human joints and human hip-joint prosthesis.

594 Advanced Machine Design (3)

Prereq: perm, 403. (arranged). Advanced considerations in design and analysis of machine members, including plates, shells, thermal stress analysis, fatigue in metals, designing with plastics, stress propagation and creep. 3 lec.

595 Introduction to Kinetic Theory and Statistical Thermodynamics (4)

Prereq: perm. (fall). Kinetic theory, classical and quantum statistical mechanics with application to engineering devices. 3 lec.

596 Experimental Methods in Design (3)

Prereq: perm, 403. (spring). Investigation and evaluation of experimental methods used to obtain design and performance data. Techniques of photoelasticity, strain measurements and vibration measurement.

597 Methods of Engineering Analysis I (4)

Prereq: perm, Math 340. (arranged). Methods of analyzing equilibrium and eigenvalue problems in mechanical engineering and engineering mechanics; matrix methods, variational methods, numerical methods.

681 Research (1-6)**695 Thesis (1-6)****ENGLISH****English Language and Literature**

The Department of English Language and Literature offers graduate courses in the areas of English and American literature, the English language, creative writing and comparative literature. Programs leading to the degrees of master of arts in English and doctor of philosophy in English are available in each of these areas.

MASTER'S PROGRAM

Programs are offered leading to the master of arts degree in English in the areas of English and American literature, English language and creative writing.

Admission

Application must be made to the Graduate College. The applicant should present at least 27 quarter hours (18 semester hours) of superior work on the undergraduate level in English language and literature and submit evidence of having completed at least two years of college work in a foreign language. Applicants who have not had two years of a foreign language, but who otherwise have outstanding qualifications for graduate study, may apply. Applications for admission will also be considered from students who have had extensive training in academic fields closely related to English. All applicants should arrange for letters of recommendation from three professors with whom they studied on the undergraduate level to be sent to the chairman of the graduate committee in English.

All applicants for admission take the Graduate Record Examination (including the advanced test in literature) and submit their scores. If a student is admitted to one of the master's programs without having taken the GRE, he must take this test the first time it is offered at Ohio University after he has enrolled.

Applicants for the creative writing program must also submit manuscripts or off-prints representative of their work to the director of the creative writing program.

General Requirements

All master's programs require the following:

Minimum Hours of Graduate Credit

The master of arts degree requires a minimum of 60 quarter hours of credit. A graduate student with no regular teaching responsibilities can accumulate 60 hours credit in four quarters of full-time study.

Foreign Language

A reading knowledge of one foreign language is required for the master's. Any candidate who has successfully completed the first two years of a foreign language (approved by the department) at the college level will be considered to have satisfied the foreign language requirement. Any candidate who cannot so satisfy the requirement must demonstrate his ability to read a foreign language (approved by his adviser) by passing either a departmental reading examination in that language or two quarters of the graduate reading course in that language. The reading course carries no credit towards graduation.

Teaching

Each candidate must enroll in Eng 591 and will be required to teach under supervision.

Programs

English and American Literature

This program emphasizes the historical-critical study of English and American literature. The normal course of study will include one quarter of bibliography and methods (five hours), a two-quarter proseminar sequence (winter and spring), a three-course minor, and 30 hours of additional coursework. A student may choose to write a thesis instead of taking a proseminal sequence, but this is not recommended. Courses will be selected so that a student's program of study will cover all broad areas of English and American literature.

In his final quarter of graduate study the candidate must pass a written major examination based on a general reading list in English and American literature.

Creative Writing

This program differs from the preceding historical-critical program in that the student substitutes three creative writing seminars (Eng 690, 691, 692) for the minor and presents in lieu of a thesis a book-length manuscript worthy of publication.

English Language

This program is designed for students who wish to prepare themselves to teach college courses in the history and the structure of the English language and in the literature of the medieval period. Students in this program will meet the following requirements:

Sixty hours of coursework, including Eng 501A,B,C, 502, 503, 569B, 591 and 593; Ling 550 and 661, and a two-quarter proseminal sequence in the English language or in medieval literature.

A comprehensive examination which covers the history and structure of the English language and major works in the medieval period of English literature.

Individual programs to meet these requirements will be planned in cooperation with the student's adviser.

DOCTORAL PROGRAM

Programs are offered leading to the doctor of philosophy degree in English and American literature, English language and in English with concentration in comparative literature. Doctoral study is divided into two phases: the doctoral applicancy and the doctoral candidacy.

Admission

After receiving the master's degree, the student may apply to the graduate committee of the department for admission to advanced graduate study. His application will be considered in light of (1) his academic performance in his master's program, particularly in his proseminal or on his thesis; (2) his performance on the major examination; (3) the recommendation of his major professor or professors; (4) the evidence he has given of becoming a successful teacher of English.

The student who has taken his master's degree at a school other than Ohio University and who

desires to be admitted to one of the doctoral programs must apply for admission to the Graduate College. In addition to official transcripts showing his total undergraduate and graduate academic record, his application for admission must include his scores on the Graduate Record Examination and letters of recommendation from at least three professors with whom he studied in his master's program.

Programs

English and American Literature

This program emphasizes the historical-critical study of English and American literature, permitting a concentration in an area of special interest, the limits of the area to be defined by the student's advisory committee and approved by the graduate committee. Minimum requirements for this program are found in the section below headed *Doctoral Applicancy*.

English Language

Students wishing to enter this program must hold an MA in the English language or its equivalent. The general requirements are as follows:

All students take Eng 504, 531 and 607; Ling 671, and a combination of at least three doctoral seminars to include work in both the English language and medieval literature.

In consultation with his adviser the student will select additional courses in language, literature and linguistics.

Concentration in Comparative Literature

Students with an MA in English may be admitted to this program. Students in this program will designate comparative literature as their area of concentration and will enroll in the three-quarter comparative literature seminar sequence. All must meet their language requirement by studying one language intensively and by taking a graduate minor (at least 12 hours) in the literature of that language. In addition, a sound reading knowledge of a second foreign language and participation in the translation workshop are required. In most other respects, students concentrating in comparative literature will meet the general requirements for the PhD in English.

Doctoral Applicancy

If accepted for advanced graduate study, the student becomes a doctoral applicant. Toward the end of his first year of study as a doctoral applicant, his progress will be reviewed by the English department graduate committee and he will be advised at that time whether he should continue in the program. He will remain an applicant until he has fulfilled the following requirements:

English 501A,B,C

Seminars: The doctoral applicant will take a minimum of two quarters of doctoral seminars.

The graduate minor: (a) three courses in another department (philosophy, history, modern languages, etc.) or (b) a minor in English language, to be completed by taking Eng 503 and either 502 or 504, in addition to the required 501A,B,C; or a minor in literary criticism, to be

fulfilled by taking Eng 536 and 537, and Eng 763 and 765, or a minor in modern languages, to be fulfilled by taking three graduate-level courses in a foreign language. Under certain circumstances, with the approval of the adviser and the graduate committee, the foreign language minor may be fulfilled in classical languages.

Foreign language requirements: Knowledge of one foreign language and its literature, to be fulfilled by taking a 500-level course in the literature of a particular language, taught in that language. A grade of A or B is required. For students in certain areas of study the adviser and the graduate committee may recommend more than one language. The language course taken may count toward a minor in a foreign language.

Other coursework as called for by the candidate's individual course of study. English 593 is required of all graduate students.

Two written examinations and an oral, one written examination over English and American literature and one over the area of specialization. These examinations are based on reading lists available to all students at the beginning of their doctoral studies.

A satisfactory prospectus for the dissertation.

Doctoral Candidacy

In this final phase of his work, the candidate will complete his dissertation. The graduate committee recommends that the dissertation be limited to approximately 150 pages whenever possible.

In lieu of the traditional oral examination the candidate will deliver a public lecture on some aspect of his dissertation and will lead a discussion upon his work.

501A English Language (5)
(fall). Historical survey of sounds, inflections, syntax and vocabulary of Old and Middle English. 501A covers Old English.

501B English Language (5)
Prereq: 501A. (winter). Continuation of 501A. 501B covers Anglo-Saxon and Early Middle English.

501C English Language (5)
Prereq: 501B. (spring). Continuation of 501A and B. 501C covers Middle English.

502 Old English Poetry (5)
Prereq: 1st and 2nd qtr of 501 or equiv. (spring, as needed). Translation and criticism of Old English verse.

503 English Language II (5)
Prereq: 501 or perm. (spring). Sounds, inflections, syntax and vocabulary of English from 1500 to present. Emphasis upon language of Shakespeare.

504 American English (5)
Phonology and grammar-syntax of American English from a linguistic point of view; historical and geographical development.

505 Old Norse (5)
(as needed). Basic Old Norse grammar with introductory readings.

506 Icelandic Saga (5)
Prereq: 505. (as needed). Reading in Old Icelandic literature in original language.

511 18th Century Novel (5)
(fall). Development of novel form in 18th century. Defoe through Jane Austen.

512 19th Century Novel (5)
(winter). Critical analysis of novels by Dickens, Thackeray, Trollope and the Brontes, Eliot, Meredith and Hardy.

515 19th Century Prose (nonfiction) (5)
Studies in nonfiction prose, mainly the personal essay, literary criticism, social criticism, biography.

524 Shakespeare (5)
(spring). Intensive study in specific critical and historical problems.

531 Medieval Drama (to 1590) (5)
Prereq: 569A or equiv. English drama from beginning through Christopher Marlowe.

532 Renaissance Drama (1590-1642) (5)
English drama (excluding Shakespeare) from Ben Jonson to closing of theaters.

536 History of Criticism (5)
(fall). Critical thought and practice.

537 History of Criticism (5)
(winter). Continuation of 536.

540 Studies in Comparative Literature (5)
Literary movements, themes or genres. Different topic offered each quarter, e.g., symbolist and surrealist movement, baroque in western literature, concept of realism or romanticism, grotesque in literature.

541 Studies in Comparative Literature (5)
Continuation of 540. See 540 for description.

542 Studies in Comparative Literature (5)
Continuation of 540 and 541. See 540 for description.

561 Colloquium (5)
(fall). Specific interdisciplinary problems to be assigned each quarter.

562 Colloquium (5)
(winter). Continuation of 561. See 561 for description.

563 Colloquium (5)
(spring). Continuation of 561 and 562. See 561 for description.

564 English Phonetics (3)
Speech sounds of English with special attention to articulatory training for foreign teachers of English.

569 Studies in Literature (5)
Advanced study of a period or of some aspect of a period (a movement, a genre, author, etc.) of English or American literature. Designed to supplement undergraduate training and to provide intensified training in areas of concentration. Following areas scheduled regularly: (A) Medieval language and literature, (B) Age of Chaucer, (C) 16th Century, (D) Spenser, (E) 17th Century, (F) Milton, (G) Restoration, (H) Earlier 18th Century, (I) Later 18th Century, (J) Romantic poets: Blake, Wordsworth, Coleridge, (K) Romantic poets: Byron, Shelley, Keats, (L) Major Victorian poets, (M) Minor Victorian poets, (N) 20th Century, (O) American literature to Civil War, (P) American literature, Civil War to WWI, (Q) Afro-American literature.

591 Problems in Teaching College English (1-5)

593 Bibliography and Methods (5)
(winter). Enumerative and descriptive bibliography; methods of criticism and scholarship.

601 Modern English Dialects (4)
Geographical distribution of American and Commonwealth English dialect features.

602 Syntactic Structures in English (4)
English sentence structure.

603 Phonological Structures in English (4)
Sound system of English.

609 Proseminar in English Language (5)
(spring). Research in structure and development of English language.

640 Translation Workshop (1-5)
Prereq: perm; command of at least 1 foreign language. Intensive work in translating foreign literature, verse and prose, into English.

641 Translation Workshop (1-5)
Prereq: perm; command of at least 1 foreign language. Continuation of 640. See 640 for description.

642 Translation Workshop (1-5)
Prereq: perm; command of at least 1 foreign language. Continuation of 640 and 641. See 640 for description.

650 Proseminar in Literature (5)
(winter). 2 qtr study, research and writing program. Winter quarter devoted to comprehensive reading in subject matter area, investigation of nature of literary problems relevant to this area and selection of problems appropriate to graduate writing of papers comparable in scope to master's thesis or scholarly papers.

651 Proseminar in Literature (5)
Prereq: 650. (spring). Continuation of 650. See 650 for general description. 651 devoted to further research and writing of papers.

690 Creative Writing Seminar (5)
Prereq: 6 hrs of creative writing. Criticism of manuscripts and discussion of problems of form. Admission only in 1st qtr, except for unusual reason.

691 Creative Writing Seminar (5)
Prereq: 6 hrs of creative writing. Continuation of 690.

692 Creative Writing Seminar (5)
Prereq: 6 hrs of creative writing. Continuation of 690 and 691.

695 Thesis (5-10)

701 Formal Stylistics (4)
Research on selected topics in formal characterization of texts.

703 Seminar in English Language (5)
Research into selected problems of structure and development of English language.

715 Theory of Teaching Literature (5)
Discussions of theoretical and practical problems of teaching literature in colleges and universities.

724 Problems in Shakespeare (5)
Prereq: PhD applicancy. Intensive research in specific problems in area of Shakespeare criticism and scholarship.

763 Stylistics (5)
Prereq: PhD applicancy. (winter). Problems in description and analysis of prose style; prosodic theory; literature and its writers.

765 Theory of Literature (5)
Prereq: PhD applicancy. (spring). Investigations into nature of literature and problems of practical literary criticism.

770 Seminar in Literature (5 or 10)
Prereq: PhD applicancy. 3 1- or 2-qtr seminars customarily offered each yr in each of 7 areas. Seminars form sequence of independent units. In any particular yr, more than 3 seminars may be offered in same area (e.g., a sequence in early Renaissance and 1 in late Renaissance or a se-

quence in Romantic and 1 in Victorian). From 3 to 6 seminars may be offered in area, depending upon staff and upon student need.

771 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 771 covers Renaissance.

772 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 772 covers Restoration and 18th Century.

773 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 773 covers 19th century.

774 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 774 covers 20th century British and American.

775 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 775 covers American literature.

776 Seminar in Literature (5 or 10)

Prereq: PhD applicancy. See 770 for general description. 776 covers comparative literature.

780 Special Studies Seminar (1-5)

Prereq: PhD applicancy or perm. Seminars in individual writers and individual works. Offered when (a) there is student demand and/or (b) widely recognized specialist on staff.

781 Research (1-15)

Covers period when student is doing necessary research for prospectus. Also used to cover special research courses—e.g., problems in editing, problems in historical research, etc.

782 Research (1-15)

Continuation of 781. See 781 for description.

792 Problems in Teaching College English (1-2)

895 Dissertation (1-15)

FILM

561 Motion Picture Production I (5)

Prereq: perm. (fall). Professional workshop in 16mm techniques; elementary film structuring; camera and lighting; editing; sound; laboratory preparation. Intensive exercise as individual filmmaker in production of short motion pictures. *Not open to those who have had similar undergraduate courses.*

562 Motion Picture Production II (5)

Prereq: 561 and perm. (winter). See 561 for description.

563 Motion Picture Production III (5)

Prereq: 562 and perm. (spring). See 561 for description.

601 Theory and Criticism of Film I (4)

Prereq: perm. (fall). Formal principles and stylistic fundamentals of film, including modes and methods of film criticism. Examination of major works of motion picture theory and criticism. Weekly screenings.

602 Theory and Criticism of Film II (4)

Prereq: 601 or perm. (winter). Continuation of 601.

603 Theory and Criticism of Film III (4)

Prereq: 602 or perm. (spring). Continuation of 602.

633 Seminar in Film I (4)

Prereq: perm. (fall). Introduction to historical and other scholarly study of film. Weekly screenings.

634 Seminar in Film II (4)

Prereq: perm. (winter). Advanced film scholarship, usually focusing on problems in early film history. Weekly screenings.

635 Seminar in Film III (4)

Prereq: perm. (spring). Advanced topics in film scholarship. Weekly screenings.

661 Film Structure I (3)

Prereq: perm. (fall). Analysis of structure in narrative and other kinds of film. Structuring of nonscripted motion pictures. Editing organization of pictures and sound. Preparation of scripts.

662 Film Structure II (3)

Prereq: perm. (winter). Continuation of 661.

671 Film Topics Seminar (1-5)

Prereq: perm. (fall). Investigation of selected motion picture topic announced in advance of registration. Orientation may be either scholarly-critical or production workshop. Topics and credit hours vary qtr to qtr.

672 Film Topics Seminar (1-5)

Prereq: perm. (winter). See 671 for description.

673 Film Topics Seminar (1-5)

Prereq: perm. (spring). See 671 for description.

780 Individual Problems (1-5)

Prereq: perm. Preparation and production of a motion picture. Student must have skills necessary for completion of project. May be repeated.

781 Individual Readings (1-5)

Prereq: perm. Readings in works related to motion pictures. Selections by student in consultation with faculty member.

895S Film Studio Thesis (1-10)

2nd yr.

895W Film Written Thesis (1-10)

2nd yr.

FINANCE

(Concentration area only)

To begin work in this area, the student must have completed basic courses satisfactory to the department and have permission from the instructor for a specific course.

525 Managerial Finance (4)

Role of financial management in business enterprise; financial analysis; planning needs for short-term and long-term funds; planning for profits; capital budgeting; internal management of working capital and income; raising funds to finance growth of business enterprises.

527 Banking and the Financial System (4)

Functioning of commercial banking system and other financial institutions. Flow of funds and interest-price movements in money and capital markets. Supply of loanable funds and demand for funds in mortgage loan market, consumer credit market, corporate securities markets and markets for government securities and municipal obligations. Consideration of effects on financial markets of Federal Reserve and Treasury policies.

528 Management of Financial Institutions (4)

Analysis of objectives, functions, practices and problems of financial institutions as viewed by management of these institutions.

532 Property and Casualty Insurance (4)

Analysis of principal types of property and casualty insurance policies with respect to protection afforded policyholder, his obligations and cost of protection. Policies studied include fire and extended coverage, allied line, business interruption,

inland marine, automobile, general liability, theft and bonds. Subjects of risk, insurance law and multiple-peril policies also covered.

536 Life Insurance (4)

Fundamental economics of life insurance. Principles and practices of life insurance, including types of contracts, group and industrial insurance and annuities.

537 Personal and Business Insurance Planning (4)

Consumer needs for all types of insurance; legal aspects and estate planning; risk management programs for business, including all forms of group insurance.

539 Insurance Regulations and Financial Management (4)

Underwriting, reinsurance, financial analysis and relevant insurance statutes and regulations.

542 Security Analysis (4)

Problems of selecting securities for various investment purposes. Industry structure, volume-price-cost relationships, management, financial position, terms of securities contracts and market price behavior are studied to determine attractiveness of securities. Portfolio construction considered.

545 Portfolio Management (4)

Decision-making processes in management of individual and institutional securities portfolios. Theoretical foundations of portfolio selection and construction. Model-building and other criteria applicable to selection, risk-return tradeoffs, revision and evaluation of portfolio performance. Applications of computer technology and other quantitative techniques to different aspects of portfolio management.

553 Real Estate Finance (4)

Financial and investment analysis in purchase and sale of real properties, including single-family dwellings and income properties. Income and risk analysis in real estate investment. Instruments of real estate finance and institutional arrangements in mortgage markets. Government and mortgage markets. Flow of funds and credit conditions in mortgage markets.

555 International Finance (4)

Problems in international finance. Financing international trade and other transactions; foreign exchange market and exchange rates; international payments system. Foreign central banking and current developments in international financial co-operations.

561 Problems in Business Finance (4)

Case study of financial management in business enterprises. Planning current and long-term financial needs, profit planning, allocation of funds, raising funds, dividend policies, expansion and combination, recapitalization and reorganization.

563 Capital Allocation (4)

Planning capital outlays, methods for ranking investment proposals, theories of financial structure and cost of capital and approaches to investment decisions under conditions of uncertainty.

565 Mathematical Analysis of Financial Decisions (4)

Application of quantitative methods to financial management, with emphasis on systems approach to evaluating proposed financial decisions.

620 Financial Management I (4)

Finance function of business enterprises as viewed by executive responsible for procuring and utilizing funds. Case analyses include special problems in financial planning and control, working capital management, capital allocation, short- and long-term fund raising, dividend policies and financing expansion and combination.

621 Financial Management II (4)

Analyses of financial problems of business firms with emphasis on recent theoretical and institutional developments in financial management and implications of financial decisions on economic behavior.

622 Seminar in Problems of Business Finance (4)

Prereq: 621. Specific aspects of financial management. Topics vary and depend on interests of seminar members. Discussions based on assigned reading and individual research papers.

631 Seminar in Insurance (4)

Current topics of significance in fields of life, health, property and liability insurance; discussion of assigned readings and individual research reports.

650 Seminar in Money and Capital Markets (4)

Analysis of conditions in money and capital markets as they affect business decisions; flow of funds in the United States; structures of interest rates; role of monetary policy and its effects on financial markets; principal instruments and intermediaries in money and capital markets; analysis of important segments of financial markets.

651 Seminar in Monetary Theory (4)

Theories explaining relationship between money and its value, relations between money and level of economic activity, allocation of funds among alternate uses, interest level and behavior of interest rates. (Same as Econ 651).

655 Seminar in International Finance (4)

Financing and control of foreign operations and international transactions, portfolio and direct investments abroad, institutions and instruments of foreign money and capital markets.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with faculty member.

695 Thesis (1-15)

697 Independent Research (1-15)

Research under direction of faculty member.

698 Internship (1-15)

FOREIGN LANGUAGES AND LITERATURES

African and Asian Languages

Germanic, Romance and Slavic Languages

Greek and Latin Languages

African and Asian Languages

Chinese (Asian)

571 Elementary Chinese I (3)
(fall). Intensive oral study of Chinese.

572 Elementary Chinese II (3)

Prereq: 571 or equiv. (winter). Intensive oral study of Chinese.

573 Elementary Chinese III (3)

Prereq: 572 or equiv. (spring). Intensive oral study of Chinese.

574 Intermediate Chinese I (3)

Prereq: 573 or equiv. (fall). Intensive study of spoken and written Chinese.

575 Intermediate Chinese II (3)

Prereq: 574 or equiv. (winter). Intensive study of spoken and written Chinese.

576 Intermediate Chinese III (3)

Prereq: 575 or equiv. (spring). Intensive study of spoken and written Chinese.

577 Advanced Chinese I (3)

Prereq: 576 or equiv. (fall). Intensive study of spoken and written Chinese.

578 Advanced Chinese II (3)

Prereq: 577 or equiv. (winter). Intensive study of spoken and written Chinese.

579 Advanced Chinese III (3)

Prereq: 578 or equiv. (spring). Intensive study of spoken and written Chinese.

Hausa (African)**571 Elementary Hausa I (3)**

(fall). Intensive oral study of Hausa.

572 Elementary Hausa II (3)

Prereq: 571 or equiv. (winter). Intensive oral study of Hausa.

573 Elementary Hausa III (3)

Prereq: 572 or equiv. (spring). Intensive oral study of Hausa.

574 Intermediate Hausa I (3)

Prereq: 573 or equiv. (fall). Intensive study of spoken and written Hausa.

575 Intermediate Hausa II (3)

Prereq: 574 or equiv. (winter). Intensive study of written and spoken Hausa.

576 Intermediate Hausa III (3)

Prereq: 575 or equiv. (spring). Intensive study of spoken and written Hausa.

577 Advanced Hausa I (3)

Prereq: 576 or equiv. (fall). Intensive study of spoken and written Hausa.

578 Advanced Hausa II (3)

Prereq: 577 or equiv. (winter). Intensive study of spoken and written Hausa.

579 Advanced Hausa III (3)

Prereq: 578 or equiv. (spring). Intensive study of spoken and written Hausa.

Indonesian/Malay (Asian)**571 Elementary Indonesian/Malay I (3)**

(fall). Intensive oral study of Indonesian/Malay.

572 Elementary Indonesian/Malay II (3)

Prereq: 571 or equiv. (winter). Intensive oral study of Indonesian/Malay.

573 Elementary Indonesian/Malay III (3)

Prereq: 572 or equiv. (spring). Intensive oral study of Indonesian/Malay.

574 Intermediate Indonesian/Malay I (3)

Prereq: 573 or equiv. (fall). Intensive study of written and spoken Indonesian/Malay.

575 Intermediate Indonesian/Malay II (3)

Prereq: 574 or equiv. (winter). Intensive study of spoken and written Indonesian/Malay.

576 Intermediate Indonesian/Malay III (3)

Prereq: 575 or equiv. (spring). Intensive study of spoken and written Indonesian/Malay.

577 Advanced Indonesian/Malay I (3)

Prereq: 576 or equiv. (fall). Intensive study of spoken or written Indonesian/Malay.

578 Advanced Indonesian/Malay II (3)

Prereq: 577 or equiv. (winter). Intensive study of spoken and written Indonesian/Malay.

579 Advanced Indonesian/Malay III (3)

Prereq: 578 or equiv. (spring). Intensive study of spoken and written Indonesian/Malay.

Swahili (African)**571 Elementary Swahili I (3)**

(fall). Intensive oral study of Swahili.

572 Elementary Swahili II (3)

Prereq: 571 or equiv. (winter). Intensive oral study of Swahili.

573 Elementary Swahili III (3)

Prereq: 572 or equiv. (spring). Intensive oral study of Swahili.

574 Intermediate Swahili I (3)

Prereq: 573 or equiv. (fall). Intensive study of written and spoken Swahili.

575 Intermediate Swahili II (3)

Prereq: 574 or equiv. (winter). Intensive study of spoken and written Swahili.

576 Intermediate Swahili III (3)

Prereq: 575 or equiv. (spring). Intensive study of spoken and written Swahili.

577 Advanced Swahili I (3)

Prereq: 576 or equiv. (fall). Intensive study of spoken and written Swahili.

578 Advanced Swahili II (3)

Prereq: 577 or equiv. (winter). Intensive study of spoken and written Swahili.

579 Advanced Swahili III (3)

Prereq: 578 or equiv. (spring). Intensive study of spoken and written Swahili.

Germanic, Romance and Slavic Languages***French*****German**

Italian

Portuguese

Russian

***Spanish**

*Master's degree program offered.

To begin a graduate major in a modern foreign language, the student must have completed the requirements for the bachelor of arts major or the equivalent in that language.

To begin work in a second area of modern languages, the student must have completed a minimum of six hours of undergraduate work in the second language at the 300 level or the equivalent.

Students are urged to travel and study abroad, especially during the summer quarter.

Master's Program with Thesis

For this program the student must demonstrate a reading knowledge of a second modern language or Latin, to be shown either by passing 213 or 241 in a modern foreign language, Lat 213 or equivalent intermediate course with at least a grade of B; passing the examination given for 613 (ETS Foreign Language Tests) or by passing a literature course in the foreign language. In lieu of a foreign language, a student may present two courses in linguistics which are to be in addition to the 45 quarter hours required for the MA degree. The courses required for the MA with thesis are 551; one seminar; any two courses from 537, 539, 541, 557; at least four courses in literature at the 500 level and above, which should be distributed so that the student has exposure to each area tested on the comprehensive examination, and the thesis. Teaching assistants are required to register for one hour of 698 the first three quarters they are on financial appointment. The student must pass a comprehensive examination, based on coursework and a reading list.

Nonthesis Program

The student must show a reading knowledge as outlined under the MA with thesis program. The courses required for the nonthesis option are the same as those for the MA with thesis with one exception: in lieu of writing a thesis the student takes two seminars instead of one. Teaching assistants are required to register for one hour of 698 the first three quarters they are on financial appointment. The student must pass a comprehensive examination, based on coursework and a reading list.

It is also possible to earn a master of education degree with certification and a major in one modern foreign language, or a PhD in education with 45 quarter hours in one modern foreign language. Students interested in these programs should consult with the College of Education for further information.

Modern Languages (Professional Course)

510 Supervised Practice and Research in Language Laboratory (3)

For graduate students in teaching English as a foreign language, modern foreign language graduate assistants, graduate teaching assistants in linguistics, graduate education students and teachers in secondary schools and colleges.

545 Teaching of Modern Foreign Languages (3) (fall).

Problems confronting students on level of instruction (elementary school, secondary school, college) at which they teach or plan to teach.

French (Romance)

515 French Literature of the Renaissance (4)

Significant works of major 16th century writers: Marot, Rabelais, the *Pleiade* poets, Montaigne and others.

516 French Literature of the Renaissance (4)

Continuation of 515. See 515 for description.

518 17th Century French Literature (4)

Works by numerous authors, including at least some of the following: Descartes, Pascal, Mme de La Fayette, La Rochefoucauld, La Bruyère, La Fontaine, and Boileau.

519 17th Century French Literature (4)

Major plays of Corneille, Racine and Molière.

521 Old French Language and Literature (4)

(as needed). Language and literature of northern France and England in the Middle Ages, especially 12th and 13th centuries. Elementary knowledge of Latin and German recommended.

522 Old French Language and Literature (4)

(as needed). Continuation of 521. See 521 for description.

523 18th Century (4)

French literature and thought in the Age of Enlightenment: Montesquieu, Voltaire, Rousseau, Diderot, Marivaux, Beaumarchais.

524 18th Century (4)

Continuation of 523. See 523 for description.

525 Romanticism (4)

Development of the Romantic movement in France, as exemplified in the drama, poetry and fiction of the 1st half of the 19th century.

526 Realism and Naturalism (4)

Representative works of Balzac, Stendhal, Flaubert, Zola and Bécque.

527 French Poetry in the Second Half of the 19th Century (4)

Poetry of Leconte de Lisle, Heredia, Baudelaire, Verlaine, Rimbaud and Mallarmé.

529 20th Century French Literature (4)

French literature before WW II.

531 20th Century French Literature (4)

Novel, drama and poetry in France since WW II.

533 20th Century French Literature (4)

Study in depth of a genre, theme, work or major figure of the 20th century.

537 Applied Phonetics (3)

(fall). Advanced study of the International Phonetic Alphabet and transcription practice in French.

539 Modern French Usage (3)

(winter). Finer points of grammar. Practice in composition and analysis of texts.

541 Stylistics (3)

(spring). Composition. *Explication de texte*. Translation of English into French. Study of French prosody.

551 Bibliography and Research Problems (3)

(fall). Basic literary history, criticism and theory. Use of bibliographical resources.

557 History of the French Language (4)

Phonology, morphology and syntax of Old French; survey of evolution of French from its origin to present; reading of illustrative texts. Elementary knowledge of Latin recommended.

561 Graduate Study in France (as recommended by dept)

Prereq: perm. Research project must be approved by the graduate committee. Research paper must be presented to the graduate committee by the end of the qtr following foreign study.

562 Graduate Study in France (as recommended by dept)

Prereq: perm. Continuation of 561. See 561 for description.

563 Graduate Study in France (as recommended by dept)

Prereq: perm. Continuation of 561 and 562. See 561 for description.

602 Seminar (4, max 8)

(winter). Advanced study of a period, movement, genre, work or author in 1 of the following areas: (a) Medieval (b) Renaissance (c) 17th century (d) 18th century (e) 19th century (f) 20th century. May be repeated when topic is changed.

603 Seminar (4, max 8)

(spring). Continuation of 602. See 602 for description.

611 French for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 French for Graduate Reading Requirement (4)

Continuation of 611. See 611 for description.

613 French for Graduate Reading Requirement (4)

Continuation of 611 and 612. See 611 for description.

695 Thesis (as recommended by dept)

Prereq: perm.

698 Independent Study in French (1-7, max 7)

Prereq: perm. Normally, final grade is recorded when departmental major examination has been passed.

German (Germanic)**521 Middle High German Language and Literature (4)**

(as needed).

522 Middle High German Language and Literature (4)

(as needed).

525 19th Century German Literature (4)**526 19th Century German Literature (4)**

Continuation of 525.

527 19th Century German Literature (4)

Continuation of 525 and 526.

529 20th Century German Literature (4)**530 20th Century German Literature (4)**

Continuation of 529.

531 20th Century German Literature (4)

Continuation of 529 and 530.

533 German Lyric Poetry (4)

Interpretative and critical study of German lyric poetry.

537 Phonology (3)

(fall). Analytical description of sound system of modern German.

539 Grammatical Structure (3)

(winter). Structure of German language with emphasis on contrastive syntax of English and German.

541 Stylistics (3)

(spring). Practice in writing expository prose and analysis of style.

547 Reading in German Literature from Periods through the 17th Century (4)

Literature of the Courtly period, the Renaissance and Reformation and the Baroque.

548 Reading in German Literature from Periods through the 17th Century (4)

Continuation of 547. See 547 for description.

551 Bibliography and Method (3)

(fall). Introduction to literary scholarship and criticism.

553 The Age of Goethe (4)

Major works of Lessing, Schiller and Goethe.

554 The Age of Goethe (4)

Continuation of 553. See 553 for description.

555 The Age of Goethe (4)

Continuation of 553 and 554. See 553 for description.

557 History of the German Language (4)

(as needed).

561 Graduate Study in Germany, Austria or Switzerland (as recommended by dept)

Prereq: perm. Research project must be approved in advance.

562 Graduate Study in Germany, Austria or Switzerland (as recommended by dept)

Prereq: perm. Continuation of 561. See 561 for description.

563 Graduate Study in Germany, Austria or Switzerland (as recommended by dept)

Prereq: perm. Continuation of 561 and 562. See 561 for description.

602 Seminar (4)

(winter). Topics to be announced. Students may repeat seminar as often as subject changes, up to a maximum of 8 credit hrs.

603 Seminar (4)

(spring). Continuation of 602. See 602 for description.

611 German for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 German for Graduate Reading Requirement (4)

Continuation of 611. See 611 for description.

613 German for Graduate Reading Requirement (4)

Continuation of 611 and 612. See 611 for description.

695 Thesis (as recommended by dept)

Prereq: perm.

698 Independent Study in German (1-7, max 7)

Prereq: perm. Normally, final grade is recorded when departmental major examination has been passed.

Italian (Romance)**561 Graduate Study in Italy (as recommended by dept)**

Prereq: perm. For study either in Ohio University's Summer Program in Italy or at an accredited Italian university during the academic yr. Highly qualified student may go to Italy to complete research for graduate paper. Paper must be presented to departmental graduate committee by the end of qtr following study in Italy.

562 Graduate Study in Italy (as recommended by dept)

Prereq: perm. Continuation of 561. See 561 for description.

563 Graduate Study in Italy (as recommended by dept)
Prereq: perm. Continuation of 561 and 562. See 561 for description.

611 Italian for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 Italian for Graduate Reading Requirement (4)
Continuation of 611. See 611 for description.

613 Italian for Graduate Reading Requirement (4)

Continuation of 611 and 612. See 611 for description.

Portuguese (Romance)

611 Portuguese for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 Portuguese for Graduate Reading Requirement (4)

Continuation of 611. See 611 for description.

613 Portuguese for Graduate Reading Requirement (4)

Continuation of 611 and 612. See 611 for description.

698 Independent Study in Portuguese (1-7, max 7)

Prereq: perm. For students who have established superior records and who have exceptional or native fluency in Portuguese.

Russian (Slavic)

511 19th Century Russian Poetry (4)

Literary and cultural background of 19th century through works of Pushkin and Lermontov. Work or topic selected by student for special investigation.

512 19th Century Russian Poetry (4)

Continuation of 511. See 511 for description.

513 19th Century Russian Poetry (4)

Continuation of 511 and 512. See 511 for description.

521 Russian Language (4)

Development of Russian phonology, morphology and syntax from Common Slavic to present; texts which illustrate development of Russian lexicon and style.

522 Russian Language (4)

Continuation of 521. See 521 for description.

529 Russian Literature of the Soviet Era (4)

Literature and Revolution of 1917. Post-revolutionary writers and currents. Student will select special topic for investigation.

530 Russian Literature of the Soviet Era (4)

Continuation of 529. See 529 for description.

531 Russian Literature of the Soviet Era (4)

Continuation of 529 and 530. See 529 for description.

537 Applied Phonetics (3)

539 Structure of Modern Russian (3)

Phonology, morphology and syntax of contemporary Russian.

541 Stylistics (3)

543 19th Century Novel (4)
Biographies. Novels of Gogol, Turgenev and Tolstoy.

544 19th Century Novel (4)

Continuation of 543. See 543 for description.

545 19th Century Novel (4)

Continuation of 543 and 544. See 543 for description.

551 Bibliography and Research Problems (3)

(as needed). Basic literary history, criticism and theory. Bibliographical resources.

561 Graduate Study in the Soviet Union (as recommended by dept)

Prereq: perm. Program may be arranged with established university group or with department's summer group. Time spent abroad must amount to at least 1 wk for each qtr hr of credit granted. Research paper must be presented to graduate committee by end of qtr following foreign study.

562 Graduate Study in the Soviet Union (as recommended by dept)

Prereq: perm. Continuation of 561. See 561 for description.

563 Graduate Study in the Soviet Union (as recommended by dept)

Prereq: perm. Continuation of 561 and 562. See 561 for description.

601 Seminar in Literature (4, max 8)

When topic changes, student may reenroll.

611 Russian for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 Russian for Graduate Reading Requirement (4)

Continuation of 611. See 611 for description.

613 Russian for Graduate Reading Requirement (4)

Continuation of 611 and 612. See 611 for description.

698 Independent Study in Russian (1-7, max 7)

Prereq: perm. For students who have established superior records and who have exceptional or native fluency in Russian.

Spanish (Romance)

521 Old Spanish Language and Literature (4)
(as needed). Phonology, morphology and syntax of Old Spanish. Reading from the *Cantar de Mio Cid*, Gonzalo de Berceo, Juan Ruiz and other works. Knowledge of Latin recommended.

522 Old Spanish Language and Literature (4)
(as needed). Continuation of 521. See 521 for description.

525 19th Century Spanish Literature (1800-1850) (4)

Romanticism, *costumbrismo* and other trends in drama, essay and poetry. Works by the Duque de Rivas, Espronceda, Larra, Zorilla and others.

527 19th Century Spanish Literature (1850-1900) (4)

Regionalism and naturalism in the novel. Works by Fernán Caballero, Valera, Pereda, Blasco Ibáñez, Pérez Galdós and others.

529 Generation of '98 (4)

Representative works by Azorín, Baroja, Machado, Unamuno, Valle-Inclán and others.

532 20th Century Spanish Literature (4)
Drama and poetry. Works by Benavente, Casona, García Lorca and other writers of the Generation of 1927.

533 20th Century Spanish Literature (4)
Historical background, theories of literature and literary movements in peninsular literature from 1939 to present. Works by Cela, Carmen Laforet, Matute, Buero Vallejo and others.

537 Applied Phonetics (3)
(fall). Systematic description of segmental and prosodic elements of Spanish system, particularly as contrasted with English.

539 Modern Spanish Usage (3)
(winter). Syntactical and grammatical structure.

541 Stylistics (3)
(spring). Techniques used to acquire a correct style in written Spanish.

543 Spanish American Literature (4)
Main currents of Spanish American literature from colonial period through *Modernismo*.

544 Spanish American Literature (4)
Continuation of 543. See 543 for description.

547 Themes from Spanish American Prose (4)
Social and literary significance of novels written from 1910 to present.

548 Contemporary Spanish American Literature (4)
Principal authors and literary movements of post-modernism.

551 Bibliography and Research Problems (3)
(fall). Basic literary history, criticism and theory. Use of standardized bibliographical resources.

553 Drama of the Golden Age (4)
Works by Lope de Vega, Tirso de Molina, Juan Ruiz de Alarcón, Calderón and related dramatists.

555 Novel of the Golden Age (4)
Picaresque novel, Cervantes' *novelas ejemplares* and other trends in the novel of 16th and 17th centuries.

557 History of the Spanish Language (4)
(as needed). Evolution of Spanish language from pre-Romance Iberian languages to present. Consideration of contemporary dialects.

558 Don Quijote de la Mancha (4)
Intensive study of Part One and Part Two of Spain's greatest novel. Biographical material concerning Miguel de Cervantes, author of the *Quijote*.

561 Graduate Study in Spain or Latin America (as recommended by dept)
Prereq: perm. (as needed). Research project must be approved by the graduate committee. Research paper must be presented to the graduate committee by the end of qtr following foreign study.

562 Graduate Study in Spain or Latin America (as recommended by dept)
Prereq: perm. Continuation of 561. See 561 for description.

563 Graduate Study in Spain or Latin America (as recommended by dept)
Prereq: perm. (as needed). Continuation of 561 and 562. See 561 for description.

602 Seminar (4, max 8)
(winter). Advanced study of a period, genre, work or author in 1 of the following areas: (a) literature of the Middle Ages, (b) Renaissance, (c) modern Spanish literature, (d) Latin American literature. (May be repeated when topic is changed.)

603 Seminar (4, max 8)
(spring). Continuation of 602. See 602 for description.

611 Spanish for Graduate Reading Requirement (4)
Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

612 Spanish for Graduate Reading Requirement (4)
Continuation of 611. See 611 for description.

613 Spanish for Graduate Reading Requirement (4)
Continuation of 611 and 612. See 611 for description.

695 Thesis (as recommended by dept)

698 Independent Study in Spanish (1-7, max 7)
Prereq: perm. Normally, final grade is recorded when departmental major examination has been passed.

Greek and Latin Languages

Greek

No graduate program in Greek is offered.

Latin

(Secondary area only)

The prerequisite for a graduate minor in Latin is 18 hours of Latin above two high school units.

501 Studies in Roman Life (3)
Prereq: perm. Specialized study of selected topics.

511 Studies in Latin Literature of the Republic (3)
Extensive reading or study of special topics in the period.

512 Studies in Latin Literature of the Republic (3)
Continuation of 511. See 511 for description.

513 Studies in Latin Literature of the Republic (3)
Continuation of 511 and 512. See 511 for description.

515 Studies in Latin Literature of the Early Empire (3)
Extensive reading or study of special topics in the period.

516 Studies in Latin Literature of the Early Empire (3)
Continuation of 515. See 515 for description.

517 Studies in Latin Literature of the Early Empire (3)
Continuation of 515 and 516. See 515 for description.

519 Graduate Reading in Latin Literature (3)
Reading and essays to complement undergraduate work in Latin.

520 Graduate Reading in Latin Literature (3)
Continuation of 519. See 519 for description.

521 Graduate Reading in Latin Literature (3)
Continuation of 519 and 520. See 519 for description.

533 Special Work in Latin Syntax (3)
Development of style in writing Latin prose.

540 Special Problems in Latin (2-6, max 12)
(as needed). Investigation of selected phases of classical study.

601 Latin for Graduate Reading Requirement (4)

Preparation for reading knowledge examination required by certain departments for master's and PhD degrees. (*Credit does not count toward degree.*)

602 Latin for Graduate Reading Requirement (4)

Continuation of 601. See 601 for description.

603 Latin for Graduate Reading Requirement (4)

Continuation of 601 and 602. See 601 for description.

FRENCH

[See Foreign Languages and Literatures]

GEOGRAPHY

The Department of Geography offers the master of arts degree with specialization in cultural geography and geographic techniques. Students must complete at least 45 quarter hours of graduate study. Thirty of these hours must be in geography, of which nine hours may be used in thesis preparation. Required courses are: Geog 670 (Geographic Thought), Geog 675 (Library Research and Writing) and at least two seminars in geography. The student must complete an acceptable thesis on a topic agreed upon in consultation with the faculty adviser and the thesis committee.

501 Advanced Physical Geography (4)

Prereq: perm. Application of physical geographic principles to specific research problems.

511 Elements of Meteorology (5)

Prereq: perm. General survey of physical principles of weather.

512 Climate (5)

Prereq: perm. Exchanges of energy and moisture and their significance in man's utilization of earth's surface.

521 Advanced Cultural Geography (4)

(spring). Systematic study of interaction of man and his societies with land. Emphasis on man's adaptation to and modification of earth's surface.

525 Principles of Political Geography (4)

Geographic basis of national power and international relationships.

527 Geographic Perspectives on Resource Management and Conservation (4)

Problems in management of renewable natural resources approached from geographic and ecologic viewpoints.

530 Transportation Geography (4)

Transportation systems in relation to the economic structure of regions and as a basis for interregional linkages.

531 Geography of Agricultural Activity (4)
(winter). Spatial organization of agricultural systems at various levels of observation.

532 Geography of Manufacturing (4)
(spring). Locational considerations underlying spatial distributions of industrial activity.

540 Geography of Western Europe (4)
(fall). Physical, cultural and economic geography of western Europe.

541 Geography of Eastern Europe (4)
(winter). Physical, cultural and economic geography of eastern Europe.

542 Geography of Soviet Union (4)
(spring). Physical, cultural and economic geography of the Soviet Union.

545 Southeast Asia I (4)
(fall). Survey of physical and cultural aspects of Southeast Asia.

546 Southeast Asia II (4)
Prereq: perm. (winter). Regional survey of Southeast Asia.

550 Geography of Northern Africa (4)
(spring). Physical and cultural-historical geography and problems of economic development of northern Africa.

551 Geography of Sub-Saharan Africa I — Systematic (4)
(fall). Systematic survey of physical and cultural aspects of tropical Africa.

552 Geography of Sub-Saharan Africa II — Regional (4)
(winter). Regional survey of the 4 major areas of tropical Africa: East, West, Equatorial, Central and South.

555 Geography of South Africa (4)
(fall). Physical, cultural and economic geography of the continent.

556 Geography of Middle America (4)
Prereq: perm. (winter). Physical, cultural and economic geography of Mexico, Central America and the West Indies.

560 Cartography and Graphics (4)
Prereq: perm. (fall, spring). Principles of map design and construction.

561 Statistical Cartography (5)
Prereq: perm. (winter). Cartographic techniques of representing quantitative data on maps. 1 lec, 5 lab.

565 Air-Photo Interpretation (4)
Prereq: perm. (winter). Principles and techniques used in air-photo interpretation for geographers, geologists, military, community planners and engineers.

622 Population Geography (4)
Systematic survey of world population problems including distribution, composition, fertility, mortality, density, age-sex structure and impact of these on world population growth and resources.

629 Settlement Geography (4)
(spring). Arrangement, pattern and diagnostic forms of rural settlement in terms of cultural and historical antecedents and environmental effect.

630 Advanced Urban Geography (4)
Nature of urban systems, urban land use, patterns and dynamics of population densities, urban hierarchies and spheres of influence, and movement within and between urban places.

660 Advanced Cartography (5)
Prereq: perm. (spring). Computer-aided cartography for quantitative data; culminating in application of cal-comp plotter.

670 Development of Geographic Thought (4)
(spring). History of geography as science and philosophy.

675 Research Methods in Geography (4)
Prereq: perm. (spring). Research materials, methods of investigation and presentation of geographic data.

677 Quantitative Methods (4)

Prereq: perm. Systematic survey of quantitative techniques employed by geographers.

681 Seminar in Physical Geography (4)

Selected topics.

682A Seminar in Cultural Geography (4)

Selected topics.

682B Seminar in Political Geography (4)

Selected topics.

683A Seminar in Economic Geography (4)

Selected topics.

683B Seminar in Urban Geography (4)

Selected topics.

684A Seminar in Regional Geography: Europe (4)

Selected topics.

684B Seminar in Regional Geography: Southeast Asia (4)

Selected topics.

684C Seminar in Regional Geography: Africa (4)

Selected topics.

684D Seminar in Regional Geography: Latin America (4)

Selected topics.

684E Seminar in Regional Geography: Anglo America (4)

Selected topics.

690 Geographic Studies (1-5, max 10)

Prereq: perm. Supervised studies in fundamentals of geographic research. (A) cartography, (B) economic, (C) meteorology and climatology, (D) physical, (E) political, (F) regional, (G) resource management and conservation, (H) settlement, (I) urban.

695 Thesis (1-9)

GEOLOGY

Graduate students wishing to major in geology must have completed coursework in each of the following: historical geology, crystallography, mineralogy, petrology, geomorphology, paleontology, sedimentation, stratigraphy and structural geology. A year of chemistry and physics and mathematics through integral calculus is required. There is a special hydrogeology program for the undergraduate majors in mathematics, physics, chemistry and civil engineering. Students planning specialization in hydrology should plan to complete differential equations and additional physics. Students unable to meet the above requirements will be asked to make up deficiencies without graduate credit. A minimum of 45 quarter hours including a thesis, with no more than nine credit hours for the thesis, and completion of an approved field camp are required for the master's degree.

506 Geology of Ohio (3)

Prereq: 103 or perm. Physiography, stratigraphy and economic geology of Ohio. 3 lec, field trips.

531 Regional Geomorphology of North America (4)

Prereq: 102 or perm. (spring). General consideration of nature and origin of land forms of North America, emphasizing regional approach to study of land forms.

587 Summer Field Geology (9)

Prereq: perm. (8 wks, summer). Geologic mapping in deformed sedimentary, igneous and metamorphic terranes to include use of Brunton compass, hand level and air photos. Written field report required. Course conducted in eastern Nevada.

608 Statistical Applications in Geology (3)

Prereq: perm. Application of basic statistical techniques to geology. 2 lec, 2 lab.

613 Optical Mineralogy (4)

Prereq: perm. (fall). Optical characteristics of minerals in polarized light; identification of minerals with petrographic microscope. 2 lec, 4 lab.

615 X-ray Methods (3)

Prereq: perm. X-ray diffraction and X-ray crystallography; identification of minerals and analysis of mineral structures by powder method. 2 lec, 2 lab.

622 Igneous and Metamorphic Petrography (4)

Prereq: 613. Petrogenesis of igneous and metamorphic rocks and their description and classification in thin section. 2 lec, 4 lab.

624 Sedimentary Petrography (3)

Prereq: 613. Identification and environmental analyses of sedimentary rocks in thin section and grain mounts. 2 lec, 2 lab.

626 Principles of Geochemistry (3)

Prereq: perm. Geochemistry applied to various geologic environments, including principles of thermodynamics applied to geologic systems, phase equilibria, solution geochemistry, isotope geochemistry and radioactive dating. 3 lec.

632 Origin and Classification of Soils (4)

Prereq: perm. (winter). Concept of soil and factors of soil formation; introduction to soil morphology and systems of soil classification; discussion of major soil groups of world and soils of Ohio.

638 Glacial Geology (5)

Prereq: perm. (fall). Formation and behavior of glaciers, past and present; glacial processes and causes and implications of ice ages. 3 lec, 2 lab, field trips.

643 Advanced Invertebrate Paleontology (5)

Prereq: perm. Evolutionary trends, geologic history, representative faunas and modern methods in study of invertebrate fossils. 2 lec, 6 lab, field work.

646 Principles of Micropaleontology (4)

Prereq: perm. Biology, morphology, taxonomic characteristics and uses of microscope fossils. 2 lec, 4 lab.

648 Principles of Paleoecology (4)

Prereq: perm. Basic principles involved in reconstruction of paleoenvironments. 3 lec, 2 lab, field work.

655 Precambrian Geology (3)

Prereq: perm. Precambrian stratigraphy and igneous intrusions of North America and major problems involved. 2 lec, 2 lab.

656 Paleozoic Stratigraphy (4)

Prereq: perm. Distribution of sediments of Paleozoic age in North America, their types, facies relationships and tectonic controls. 3 lec, 2 lab.

660 Advanced Structural Geology (3)

Prereq: 360, perm. Mechanical analysis of deformed rocks, structural analysis using stereonet, structural petrology, present day crustal deformation. 3 lec.

664 Global Tectonics (3)

Prereq: bachelor's degree in science or engineering, or perm. Overview of continental drift, sea-floor spreading and plate tectonics, emphasizing new data from oceanography, solid-earth geophysics, geochemistry, stratigraphy and paleontology. 3 lec.

670 Economic Geology—Metals (4)

Prereq: perm. Metallic mineral deposition; major ore deposits of the world. 3 lec, 2 lab.

671 Ore Deposits (3)

Prereq: perm. Texture, paragenesis and origin of metallic ores in polished sections. 2 lec, 2 lab.

673 Economic Geology—Nonmetals (3)

Prereq: perm. Nonmetallic mineral deposition; nonmetallic and coal deposits of the world. 2 lec, 2 lab, field trips.

675 Petroleum Geology (4)

Prereq: perm. Origin, migration and accumulation of petroleum and survey of major oil basins of the world. 3 lec, 2 lab.

676 Subsurface Methods (4)

Prereq: perm. Drilling practices, electric, sonic and radioactivity logging, applied to subsurface exploration. 3 lec, 2 lab.

680 Hydrogeology (4)

Prereq: perm. (fall). *M. Ahmad.* Principles governing occurrence, movement and recovery of water in soil and aquifers, water budget, water pollution, water chemistry. 3 lec, 2 lab.

681 Hydrogeology (4)

Prereq: perm. (winter). *M. Ahmad.* Design of well construction and well fields. Pumping tests, interference. Study of ground water basins. 3 lec, 2 lab.

682 Theory of Ground Water Motion (3)

Prereq: perm. Basic principles and fundamental equations; D.E. of ground water motion, solution of boundary value problems for different types of aquifer. Analytical and numerical methods in subsurface hydrology with emphasis on finite difference method; digital model.

684 Geological Aspects of Water Pollution (4)

Prereq: perm. Occurrence of ground water, vertical distribution, types of aquifers, ground water basins, source, movement and quality of ground water, sources of water pollution.

685 Applied Geophysics (4)

Prereq: perm. Introductory course on seismic, gravity and electrical prospecting. 3 lec, 2 lab.

688 Geologic Field Reconnaissance (2-3)

Prereq: perm. (winter). Vacation period geologic field trips to selected areas in North America with pertinent conferences, readings and reports.

690 Advanced Seminar in Geology (1-2, max 6)

Prereq: perm. Intensive study of selected geologic topics by special groups. (Several seminars may be held concurrently.)

691 Geologic Studies (1-4, max 8)

Prereq: perm. Advanced techniques or readings in: A. geochemistry; B. glacial geology and physiography; C. geophysics; D. history of geology; E. hydrology; F. mineralogy, petrology or economic geology; G. paleontology; H. sedimentation and stratigraphy; I. structural geology; J. tectonics; K. water resources engineering.

693 Research in Geology (1-3, max 6)**695 Thesis (1-9)**

GOVERNMENT

To begin graduate work in government, a minimum of 18 semester or 27 quarter hours of undergraduate work in government, or its equivalent, is required.

The department offers both a thesis and non-thesis option for the MA degree. General requirements are: 45 quarter hours of graduate work, of which ten are credited for the writing of a thesis if that option is chosen, and an oral comprehensive examination in the general area of the student's interest.

501 American Constitutional Law (4)

Principles underlying American constitutional government. Consideration of leading cases with reference to interpretation of the Constitution of the United States.

502 American Constitutional Law (4)

Continuation of 501. See 501 for description.

505 American Political Parties (4)

Origin, growth, organization and methods of parties. Suffrage, nominations and elections. Role of parties in a democracy.

509 Law Enforcement (5)

Role, function and problems of American judicial, prosecutorial, policing and correctional systems in political process. Relationship of law and social organization.

510 Public Policy (5)

Analysis of major forces determining public policy. Policy areas such as education, health and social welfare examined and relationship between information and decision-making explored.

511 Public Administration (5)

Development of administrative organizations, current ideas in organizational theory, nature of federal bureaucracy, fiscal management and control of administrative action.

512 Public Personnel Administration (4)

Analysis of philosophy, problems and procedures of public personnel management. Recruitment, training and promotion policies, position classification and employer-employee relations.

513 Administrative Law

Organization, function and procedures of selected national regulatory agencies. Principles affecting administrative discretion, administrative power over private rights, enforcement and judicial control of administrative decisions.

514 Public Administrative Organization and Behavior (5)

Prereq: perm. Analysis of ways people behave in public administrative organizations, emphasizing politically relevant interpersonal and interagency relationships within bureaucracies and interactions of administrators with private individuals, interest groups, legislators, the press, public opinion and political parties.

515 The American Presidency (4)

Analysis of office of national chief executive and its place in American political system: constitutional status and powers, functional development and interrelationship of man and office.

517 Legislative Processes (5)

Environments in which legislatures function, various participants in legislative processes, formal and informal legislative structure and procedures and politics of legislative reform. Classroom simulations provide opportunities for student role playing. Emphasis is on American national and state legislatures.

GERMAN

(See Foreign Languages and Literatures)

518 Pressure Groups and Public Policymaking (5)

Organization and tactics of pressure groups and their impact on policymaking process.

526 American Foreign Policy (5)

Problems involved in formulation and execution of foreign policy. Contemporary problems of American policymakers.

527 Formulation of American Foreign Policy (5)

Prereq: perm. Institutional and administrative as well as political and more informal processes influencing formulation and implementation of U.S. foreign policy decisions. Although focus will be on executive branch (White House, Department of State, Foreign Service, Department of Defense, AID, USIA, CIA, AEC, etc.), other contributory influence such as Congressional involvement, political parties, public opinion, etc. will be included. Foreign policy machinery of limited but representative number of other nations analyzed for comparative purposes.

532 Government and Politics of the Soviet Union (5)

Institutions, nature and policies of Soviet system of government: historical background, ideology and organization; dynamics of ideology and power and nature of totalitarian systems.

533 Soviet Foreign Policy (5)

Analysis of foreign policies of the U.S.S.R. Historical, ideological and other influences, relations with bloc countries.

534A Government and Politics of Latin America (4)

Contemporary governments of Latin America. Emphasis on structure of political parties and institutions.

534B Government and Politics of Latin America (4)

Revolution in Latin America. Emphasis on Mexican and Cuban revolutions.

538 Government and Politics of Germany (5)

Analysis of political institutions, processes and forces in contemporary Germany.

541 Government and Politics of Africa (5)

Development and structure of modern African states with emphasis on political processes in tropical Africa.

544 Race and Politics in Southern Africa (5)

Political dynamics of race relations among diverse peoples of southern Africa; competing ideologies of apartheid and black liberation; appropriate American and international responses.

545 Government and Politics of Japan (4)

Political institutions and processes of Japan with emphasis on developments since 1945.

546 Government and Politics of China (4)

Political institutions and processes, and major political developments in China with emphasis on recent events.

547A Governments and Politics of Southeast Asia (4)

Political institutions, processes and groups in states of the area. 547A emphasizes political problems common to the region.

547B Governments and Politics of Southeast Asia (4)

Continuation of 547A. See 547A for description. 547B examines individual countries in detail.

552 International Relations Theory (5)

Prereq: perm. Major theoretical approaches to study of international relations, including recent work in areas such as survey research, communications, decisionmaking, simulation, systems analysis, strategy and game theory. Both traditional theories and behavioral models examined.

555 International Law (5)

International law in interstate relations and in international organization.

556 International Organization (5)

Nature, development, structure and function of international organizations, with emphasis on the United Nations.

561 New States in World Politics (4)

Impact of new states on international relations. Attention given to problems and foreign policies of new states.

574 19th Century Political Thought (4)

Movements in 19th century political thought in Europe; liberalism, socialism, irrationalism among subjects covered.

575 Studies in Political Thought (5)

Selected issues in contemporary political theory. Proposals for reform of political system, role of intellectuals in politics, analysis of key political concepts.

576A American Political Thought (4)

Considers origin and development of political ideas from colonial period through slave controversy.

576B American Political Thought (4)

Continuation of 576A. 576B begins with Social Darwinism and concludes with contemporary political ideas in America.

579 Latin American Political Thought (5)

Evolution of Latin American thought from independence movements to present. Emphasis on representative thinkers of major intellectual controversies. Attention paid to influence of foreign ideologies and socio-economic conditions. Students will read original sources or their translations.

581 Modern Political Analysis (5)

Problems of knowledge in social sciences, with emphasis on political science. Analysis of recent major theories or approaches in political science. Required of all graduate majors.

582 Quantitative Political Analysis (5)

Prereq: 581 or perm. Relevance of scientific research techniques to study of politics.

585 Personality and the Political Process (5)

Relevance of personality characteristics, psychological mechanisms and life history factors in explaining political behavior. Topics covered: behaviorism, psychoanalytic theory, authoritarianism, dogmatism and other personality traits as related to political beliefs and behavior.

590 Studies in Government (1-5)

Intensive study of special topics, including American government, international relations, political theory and public administration.

591 Research in Government (1-5, max 10)

Individual supervised research.

598 Problems in Government (1-5, max 10)

Research or directed reading based on student's special interest.

610 Seminar in American National Government (5, max 15)

Selected topics.

611 Seminar in Comparative Politics (5, max 15)

Selected topics.

612 Seminar in International Relations and Organization (5, max 15)

Selected topics.

613 Seminar in Political Theory (5, max 15)

Selected topics.

648 Political Systems of Southeast Asia (4)

Prereq: perm. Political systems of Indonesia, Malaysia and the Philippines. Both traditional and modern aspects of politics and administration and indigenous contributions to the latter.

695 Thesis (1-10)

Prereq: perm.

GREEK

(See Foreign Languages and Literatures)

HAUSA

(See Foreign Languages and Literatures)

HEALTH, PHYSICAL EDUCATION AND RECREATION

A student wishing to begin a graduate major in physical education will be expected to present a minimum of 36 quarter hours (24 semester hours) of approved coursework in health and physical education (or the equivalent) as approved by the School of Health, Physical Education and Recreation. This approved work would approximate the State of Ohio certifiable minor in health and physical education.

Students must be approved for the program by the committee on graduate study in the School of Health, Physical Education and Recreation. Three curricular options are available to students, depending upon their particular interests.

All graduate students must complete HPER 610, 691 and 692. In addition to the three required courses, all graduate students must elect a minimum of 23 quarter hours of study to complete the 36-quarter-hour degree requirement.

MASTER'S PROGRAM**PLAN A**

Plan A permits the graduate student to work toward the master of science degree. Students who elect Plan A for graduate study in physical education and the related subjects of health education and recreation may combine these interests into a major of 30 hours and a thesis. One or two other areas will be associated with this major to complete 39 hours in addition to a thesis (six hours), for a total of 45 hours.

Associated areas may be selected from related graduate course offerings in the University (with an understanding that a minimum of nine or more hours of prerequisite study is usually required before graduate study is permitted). The following areas are commonly selected: educational administration, counseling and guidance, history, social science, biological science, psychology or industrial arts. The student, however, is in no way limited to these areas.

The student must pass a comprehensive examination based on his major field of study. This examination is taken as directed by the major department.

PLAN B

Plan B permits the graduate student to work toward the master of education degree. This plan is available under the same requirements as Plan A, except for the following provisions:

1. The student will complete a minimum of 50 quarter hours of credit for the degree. Within this program 36 hours are taken in the major field. One or two other areas will be associated with this major to complete the required 46 hours of coursework. Four credit hours are given for the completed research paper.
2. The student will develop a problem in health education, physical education, recreation, athletics or a related area. The written report (research paper) of the problem must conform to the format for research writing as recommended by the department.
3. The student must pass a comprehensive examination based on his major field of study. This examination is taken as directed by the major department.

PLAN C

Plan C permits the graduate student to work toward the master of education degree. This plan is available under the same requirements as Plan A, except for the following provisions:

1. The student will complete a minimum of 50 quarter hours of credit for the degree. Within this program 36 hours are taken in his major field. One or two other areas will be associated with this major to complete the required 50 hours of coursework.
2. Neither a research paper nor thesis is required.
3. The student must pass a comprehensive examination based on his major field of study. This examination is taken as directed by the major department.

500 Guided Independent Study (1, max 2)

Selected problem with written report based on research.

504 History and Principles of Physical Education (4)

Prereq: grad rank. Origins and development of physical education and sport from time of primitive peoples through Greeks, Romans, Germans, English and Americans; biological, psychological, sociological and curricular principles underlying modern physical education program.

506 Organization and Administration of Physical Education (5)

Physical education, recreation and athletics administration in schools and colleges.

507 Problems of Competitive Athletics (3)

Problems of athletic competition at all age levels.

509 Advanced Tests and Measurements (4)

Frequency distributions, graphic representation, measures of central tendency, measures of variability, normal curve, testing hypotheses, t-distribution, methods of correlation, analysis of test construction and tests related to health, physical education and recreation.

514 Physiology of Exercise (4)

Fundamental concepts describing reaction of organ systems to exercise, study of work produced by muscle. Special areas include sport conditioning, muscular fatigue, physiology and nutrition in exercise, weight control and exercise; physical fitness; exercise and environmental stresses; review of recent research in exercise physiology and human performance.

515 Physiology of Exercise Laboratory (2)

Laboratory experiences designed to complement material covered in 514. Graduate students must take 514 and 515 concurrently.

549 Administration of Community Recreation (4)

History of play movement, programs and program building, administration of playgrounds, community centers and recreational activities.

553 Clinical Observation and Practice in Physical Medicine and Rehabilitation (6)

Prereq: perm. Concentrated summer school field course at Veterans Administration Hospital, Chillicothe, Ohio.

555 Psychology of Coaching (3)

Prereq: perm. Analysis of psychological factors and principles with special reference to emotional, attitudinal and personality problems of athletes.

580 Safety in the Public Schools (4)

Prereq: perm. Concepts and fundamentals of safety education and safety education programming as it relates to public schools.

590 Community Health Problems (4)

Prereq: perm. Institutional framework and activities of various agencies promoting and maintaining health of people of community, state and nation.

595 School Health Problems (5)

Organization and administration of school health programs including school and community relationships.

601 Problems in Health and Physical Education (4)

Selected problems in health education and physical education; research reading, discussion, analysis, written reports, examinations.

610 Curriculum in Physical Education (4)

Analysis of criteria and procedures for curriculum construction in physical education; development of written guides for programs in elementary and secondary schools, colleges and universities.

611 Special Problems in Physical Education (1-6)

Prereq: 691 and perm. (summer, fall, winter, spring). Individual research and experimentation of professional problems. Identification of pertinent problems and planning an effective attack toward potential solution.

652 Physical Diagnosis (4)

Program development relative to student health for physical education instructors, coaches and allied professionals. Techniques of physical examinations and treatment considerations pertaining to common injuries and illnesses suffered in physical education and athletics.

691 Seminar in Physical Education and Athletics (4)

Research and investigation in health education, physical education, recreation or athletics. Topics and problems suitable for thesis writing, methods of research, writing practice and critical analysis of outlines for research study.

692 Foundations of Physical Education (5)
(spring, summer). Philosophical and psychological bases of motor learning and physical education.**695 Thesis (1-6)**

HEARING AND SPEECH SCIENCES

The graduate program provides course structure and required practicum in speech pathology, audiology and speech science and combinations of these areas for students wishing to concentrate in clinical areas, research activity and/or teaching opportunities. The academic program in speech pathology is accredited by the American Boards of Examiners in Speech Pathology, of the American Speech and Hearing Association. The graduate program, in addition to University support, has support from federal grants in a variety of graduate opportunities.

All students will spend time in observation and participation in diagnosis, therapy, research and related activities as well as studying in classes. Training and service are combined in the campus clinic, local schools, state hospitals, retardation programs, county clinics and medical team diagnostic clinics. Off-campus diagnostic divisions offer a wide range of services in speech and hearing. Extensive laboratory facilities provide excellent training in investigation of acoustical, physiological and behavioral aspects of communication.

MASTER'S PROGRAM

Prospective graduate students should present a minimum of 36 quarter hours of undergraduate work, including basic courses in any or all of the following: communication theory, speech education, speech pathology, audiology, speech science, linguistics and outside courses related to the area of study to be pursued. Academic ability, experience records and personal recommendations are considered in the admission of students. Students accepted with less than the minimum requirements will be expected to make up the deficiency.

Minimum requirements for the nonthesis option MA in speech pathology are 52 quarter hours including Introduction to Graduate Study, Neuroanatomy, Experimental Phonetics I, Clinical Audiology I, Language Acquisition and 3 hours of Clinical Practicum. Minimum requirements for the nonthesis option MA in audiology are 52 quarter hours including Introduction to Graduate Study, Neuroanatomy, Experimental Phonetics I, Clinical Audiology I, II and III and either Experimental Audiology I or II. In addition each student must demonstrate a proficiency in manual communication.

Each major must have at least 34 quarter hours and a related area minor must have at least 12 quarter hours. The minimum requirements for the thesis option MA in speech pathology and audiology are 60 quarter hours and a related area minor must have at least 12 quarter hours.

Nonthesis programs are available at the option of the school's faculty. If approved, equivalent coursework, research projects or professional experience is substituted for the thesis.

DOCTORAL PROGRAM

Applications for admission to graduate study at the doctoral level are considered individually by the staff. To be eligible for admission without condition, an applicant must have completed the master's degree in the field of hearing and speech sciences or the substantial equivalent of the course requirements for this degree, and show evidence of superior scholarship, a genuine interest in research, good character and other personal attributes appropriate to a potential member of a learned profession. The doctoral program provides for the acquisition of a relatively broad background in the hearing and speech sciences with the primary areas being speech pathology, audiology and speech science.

Among the general requirements for the degree is a total of 150 quarter hours of graduate credit beyond the bachelor's degree, of which up to 24 hours may be earned for the dissertation. In addition the student must carry a major of at least 54 quarter hours (other than dissertation credit.) At least 27 quarter hours of the major must be taken at Ohio University. Two minors of at least 15 quarter hours each must be taken. One minor must be outside the school and one minor may be inside the school. The remaining hours, up to a minimum of 150, may be distributed among any of the categories listed above or in appropriate elective courses approved by the student's guidance committee.

The area within the School of Hearing and Speech Sciences may be in any of the specialization areas. The outside area will be in a related field, approved by the student's guidance committee. The total program is planned by the student and his adviser, and is subject to the approval of the student's guidance committee.

Major revisions of curriculum, requirements and other aspects of the SHSS graduate program are now in process. Up-to-date information will be provided by the school, on request.

510 Language Development (5)

Prereq: phonetics. (winter). Foundation of normal speech and language development. Development of meaning, symbolic representation, morphology, syntax.

513 Speech and Hearing Mechanisms I (3-4)

Structures, musculature, function in respiration, phonation, resonance.

514 Speech and Hearing Mechanism II (3-4)

Structures, musculature, functions and neurology involved in audition and articulation.

515 Stuttering I (5)

Prereq: perm. (winter). Past and present research, theories in stuttering. Theoretical background to develop clinical approach to stuttering therapy.

518 Disorders of Articulation (5)

Prereq: perm. (fall). Phonetic acquisition, articulation evaluation, theories and techniques of therapy.

519 Disorders of Voice (4)

Prereq: perm. (spring). Functional and organic voice problems. Evaluation and techniques of therapy.

522 Diagnostic Procedures in Speech Pathology (3-4)

Diagnoses in evaluation of speech and language problems. Screening tests, use of statistics in testing, basic interview and history procedures.

524 Neuropathologies of Speech and Language (3-4)

Prereq: perm. (fall, winter). Types, causes, syndromes of more significant pathologies of speech and language. Concentration on neurological disorders.

536 Speech and Hearing Disorders in the Public Schools (3-4)

Nature, causes, treatment of speech disorders in public schools; special reference to role of classroom teacher. (*Not open to HSS majors.*)

537 Speech and Hearing Therapy in the Public Schools (2-3)

Prereq: concurrent with practicum. Methods, organization and implementation of public school speech and hearing programs. (*Majors only.*)

543 School and Clinical Programs (4)

Prereq: majors only. (winter). Organization, planning and function in public school, community and agency programs. Prerequisite to student teaching.

550 Speech Science (3-4)

(winter). Physical properties of speech signal. Analysis of speech and speech reception.

551 Laboratory Methods in Speech Sciences (3-4)

Prereq: 550 or equiv. (spring). Physical parameters of speech signal. Laboratory exercises and experiments.

570 Basic Audiology (3-4)

(spring). Measurement of hearing with pure tone techniques, and interpretation of results in terms of social and educational handicaps.

571 Auditory Rehabilitation (3-4)

Prereq: perm. (fall, winter). Basic remedial procedures for hearing handicapped. Practice in planning for speech reading and auditory training.

579 Basic Manual Communication (1)

Prereq: majors only. Basic instruction and practice in fingerspelling and signing used by and for the deaf and hard of hearing.

601 Introduction to Graduate Study (3)

Nature and critical tasks in discipline of hearing and speech sciences. Scientific research in methodology, controversial issues and basic behavioral measurements.

611 Phonetics II (4-5)

Prereq: perm. Phonetics in linguistics; experimental investigation of speech sound production; advanced training in phonetic transcription.

644 Disorders of Language (4-5)

Prereq: 510, 518 or equiv. (winter, spring). Introduction to study of language disorders in children. Diagnosis, assessment of language abilities. Methodologies and techniques in perceptual, psychomotor and language and speech training.

645 Social Dialects (4-5)

Prereq: 509, 510 or equiv. (winter). Introduction to study of social dialects. Problems and controversies surrounding issue. Training in recognition of dialectal variations and in teaching standard English to speakers of other dialects.

672 Auditory Disorders in Children (4-5)

Prereq: perm. Identification audiometry and differential diagnosis of children with suspected auditory disorders.

680 Advanced Manual Communication (1)

Prereq: 579 or equiv. Advanced instruction and practice in fingerspelling and signing used by and for the deaf and hard of hearing.

690 Research Design (4)

(fall). Philosophy of research, formulation of hypotheses, design of experiments, presentation of research findings, interpretation of results.

695 Thesis (1-15)**702 Research Methods in Speech and Hearing (1-3)**

Research methodologies and critical examination of existing research. Required of all thesis and dissertation students. May be repeated for credit. No more than 3 hrs count toward degree.

712 Language Acquisition and Behavior (4-5)

Prereq: perm. Language and cognitive development, verbal learning and structural properties of speech.

717 Stuttering II (4-5)

Stuttering related to theory, research and therapy. Students select and develop area of interest.

720 Seminar in Articulation (4-5)

Prereq: perm. Historical development, research and theoretical approaches to articulation, experimental applications to therapy.

721 Vocal Pathologies (4-5)

Prereq: perm. Review of anatomy and normal physiology of vocal mechanism. Organic and functional voice problems and related therapy. Research problems in diagnosis and therapy.

723 Advanced Diagnostic Procedures in Speech Pathology (4-5)

Prereq: perm. Special evaluative techniques in speech pathology, laryngeal examinations, differential diagnosis, special diagnosis and tests.

725 Clinic Administration (4-5)

Prereq: perm. Organization and administration of clinical and academic programs in speech pathology and audiology. (With perm, may be repeated for credit.)

726 Language Problems of the Mentally Retarded (4-5)

Evaluating level of language development of trainable mentally retarded children. Techniques for assisting mentally retarded children to develop language.

727 Speech Disorders and Orofacial Anomalies (4-5)

Development and traumatic dysfunctions of facial structures. Recent literature in orofacial anomalies related to speech, audiological, psychosocial, physical and surgical problems.

728 Therapy Procedures with Brain Damaged Children (4-5)

Causes, evaluation and training procedures for children with language deficiencies resulting from early brain damage.

729 Aphasia (4-5)

Aphasia, etiologies in adult aphasias, evaluation and rehabilitation of adult aphasic.

730 Cerebral Palsy (4-5)

Cerebral palsy, etiologies, related problems; theories and procedures for habilitation.

731 Seminar in Speech Pathology (4-5)

Prereq: perm. Current literature and recent research, changing topic each qtr. (May be repeated for credit.)

732 Supervisory Training (4-5)

Prereq: perm. Preparation of advanced students for employment in teaching-training programs and service centers. Individual assignments and specific experience in supervision of diagnostics, therapy and research, plus administrative supervision.

733 Professional Training Seminar (3-5)

Prereq: perm. Special topics, changed each offering. Development of special interest areas and innovative procedures. (May be repeated for credit.)

734 Seminar in Voice (4-5)

Prereq: 721 or perm. Advanced phonatory theory, recent research in phonation, problems related to vocal pathologies. Students select and develop areas of interest.

735 Practicum in Diagnosis and Therapy (1-15)

Diagnosis, planning of therapy, therapy experience. 1 staff meeting per wk. May be repeated. Credit beyond 3 hrs must be approved.

738 Phonetics III (4-5)

Prereq: perm. Application of phonetics to problems of domestic and foreign dialects; importance of linguistics.

752 Experimental Phonetics I (4-5)

Prereq: perm. Acoustic properties of speech signals and study of speech production. 2 lec and required lab.

753 Experimental Phonetics II (4-5)

Prereq: 752 or equiv. Acoustical and physiological phonetics relating to speech perception. 2 lec and required lab.

754 Experimental Instrumentation (4-5)

Prereq: perm. Instrumentation utilized in audiology and speech science.

755 Seminar in Speech Science (4-5)

Prereq: perm. Topics in speech science and related areas. Required papers.

756 Seminar in Research Problems (4-5)

Prereq: perm. Organization and preparation of research in scholarly form. Analysis and evaluation of research writing in various areas. Required application of principles to seminar projects.

773 Clinical Audiology I (4-5)

Prereq: perm. Materials and techniques employed in speech audiometry and hearing aid evaluation.

774 Clinical Audiology II (4-5)

Prereq: perm. Differential diagnosis of auditory disorders. Emphasis on test batteries which may reveal cochlear versus retrocochlear and functional versus organic hearing problems.

775 Clinical Audiology III (4-5)

Prereq: perm. Electrophysiological techniques for measurement of hearing sensitivity. Emphasis on EEA, EDR and electro-acoustic and acoustic measurements of middle-ear impedance.

776 Experimental Audiology I: Psychoacoustics (4-5)

Prereq: 6 hrs audiology above 600 level. Application of standard psycho-physical techniques and theory of signal detection to audiological research.

777 Experimental Audiology II: Bioacoustics (4-5)

Prereq: 6 hrs of audiology above 600 level. Ear as transducer and analyzer; electrophysiological and mechanical properties of ear.

778 Seminar in Audiology (4-5)

Prereq: perm. Current problems and areas of research. Individual reading projects and seminar reports.

794 Directed Study and Research (1-15)

Must be approved by staff prior to registration. Final product reviewed by faculty committee. (May be repeated for credit.)

895 Dissertation (1-15)

HISTORY

MASTER'S DEGREE

To undertake graduate work in history, a minimum of 36 quarter hours in history at the undergraduate level is required, including basic survey courses in European and American history or their equivalent and at least three semester-length or four quarter-length courses at the junior-

senior level. Deficiencies in undergraduate preparation may be made up during the first quarter of study.

The MA with thesis requires a major of 16 quarter hours in United States, Europe, Latin America, Africa or Southeast and East Asia, plus a seminar-thesis combination of 16 quarter hours culminating in an acceptable thesis; eight quarter hours in one area other than the major field; 597A or 597B; four quarter hours of electives; proficiency in one foreign language prior to completion of the thesis. Other majors are available by special arrangement.

The MA without thesis requires two majors of 16 quarter hours each in two fields, one being in either United States or Modern Europe; a seminar in one major; 597A or 597B; four quarter hours of electives. No language proficiency is required.

DOCTORAL PROGRAM

Admission Requirements

After receiving the master's degree in history at an accredited college or university, the student may apply to the graduate committee of the department for admission to advanced graduate study. Students who commence their graduate studies at Ohio University may, in exceptional circumstances, be excused from completing the requirements for the master of arts and proceed to work for the doctorate. Such students would, however, be required to take the comprehensive examination required of a thesis program MA student.

Degree Requirements

The requirements below are minimum expectations: (1) A minimum of six quarters of residence on the Athens campus as a full-time student beyond the master's. One ten-week summer session may substitute for one quarter, but not more than one quarter's residence may be earned in this manner; (2) Reading proficiency in two foreign languages, one language to be French, German or Russian. Proficiency in the first language must be demonstrated during the first quarter's residence and passage is prerequisite to receiving residence credit; proficiency in the second language is to be demonstrated by the end of the second year and before the student is permitted to take the comprehensive examination; (3) Satisfactory completion of a minor of 16 graduate hours in one cognate field or 20 hours in two cognate fields. Students will be examined on their cognate field as agreed upon between the graduate committees of the departments concerned; (4) Within history a student will choose as an area of concentration either American history or modern European history. Within his area of concentration the student will select two special fields, in one of which he will write his dissertation. The student will also select two special fields outside his area of concentration; (5) Each student must perform satisfactorily on an oral general examination covering his area of concentration and written examinations in each of his four special fields. The doctoral dissertation fields are:

Area One: American History

1. Colonial America, 1607-1782
2. Twentieth Century, 1900-date
3. U.S. Diplomatic

Area Two: Modern Europe

1. Western Europe, 1870-date
2. European Diplomatic Relations

500A Colonial America to 1689 (4)

English background, establishment of settlements, first economies, evolution of political and religious structures. Relations with England, internal conflicts, Glorious Revolution.

500B Colonial America 1689-1763 (4)

Governmental changes, credit and currency, Great Awakening, cultural developments. Old Colonial System, Anglo-French rivalry, nature of colonial society, problems of maturing political units.

500C Revolutionary Era, 1763-1783 (4)

Causes of American Revolution and struggle for independence.

504A Founding the American Republic: Confederation to Constitution, 1783-1800 (4)

Confederation, movement for new government, framing of Constitution, establishment of government during Washington's and Adams' terms.

504B Founding the American Republic: Jeffersonian Democracy and Rise of Nationalism, 1800-1819 (4)

Shaping of America's political, social and economic institutions. Constitutional development and foreign policy under exponents of Jeffersonian democracy. Rise of nationalistic spirit during War of 1812 and after.

504C Old South (4)

Origins and growth of distinctive social, cultural and ideological patterns in the South. Emphasis on 19th century prior to Civil War.

506A Sectional Controversy: 1820-1836 (4)

Slavery and political controversy, rise of common man, problems and implications of Jacksonian democracy.

506B Sectional Controversy: 1836-1850 (4)

Sectional tensions evolving from political controversy, economic conditions and territorial expansion and attempts to compose differences during period 1836 to 1850.

508A Foundations of Modern America: Civil War, 1850-1865 (4)

Intensive examination of period 1850 to conclusion of Civil War, with special reference to forces causing increased sectionalism in the 1850s. Rise of new political movements and leaders; military engagements; society and institutions in North and Confederacy during wartime.

508B Foundations of Modern America: Reconstruction and New South after 1865 (4)

U.S. in years following the Civil War; administrations of Andrew Johnson and Ulysses S. Grant; reconstruction policies for South and restoration of home rule in that region; southern regional development to end of 19th century.

508C Foundations of Modern America: Gilded Age, 1877-1901 (4)

U.S. in late 19th century with emphasis upon role of agrarian, labor and reform movements in increasingly industrial and urban society; role of political parties in Gilded Age.

510A United States in Recent Times, 1900-1920 (4)

Progressive Era, American imperialism, WW I, rejection of Wilsonian liberalism.

510B United States in Recent Times, 1920-1939 (4)

Temper and culture of 20s; Republican ascendancy and Democratic revival; Great Depression; F. D. Roosevelt and New Deal.

510C United States in Recent Times, Since 1939 (4)

Abandonment of isolation; WW II; American politics in later Roosevelt years; Cold War; Truman and Fair Deal; politics and problems of 50s and 60s.

512 History of Industrial Revolution in the United States, 1850-1917 (4)

Origins of factory system; impact of Civil War; rise of heavy industry; problems of financing and control; influence of progressive era.

514A Social and Cultural History of the United States, 1607-1820 (4)

Role of minorities, class structure and religion in forming American society; development of American painting, architecture, music, literature, education and science as expressions of Puritanism, Enlightenment and nationalism.

514B Social and Cultural History of the United States, 1820-1890 (4)

Role of minorities, class structure and religion in forming American society; development of American painting, architecture, music, literature, education and science as expressions of Romanticism, Social Darwinism and Pragmatism.

514C Social and Cultural History of the United States, 1890 to present (4)

Role of minorities, class structure and religion in forming American society; development of American painting, architecture, music, literature, education and science as expressions of Pragmatism and Existentialism.

514D American Thought to 1815 (4)

Puritanism and secularization of American thought in 18th century; principle developments in American culture in colonial and early national periods.

514E American Thought, 1815-1890 (4)

Rise of romantic nationalism in social, political and cultural thought; slavery controversy, impact of Civil War and Darwinism.

514F American Thought, 1890 to Present (4)

Rise of naturalistic, pragmatic attitude; reaction against pragmatism, and the variegated development of recent American thought.

515A History of the Black Man in America to 1860 (4)

Beginning with introduction of slavery in 1619, course deals with black man's role in America to beginning of the Civil War. Concerns slavery, abolition and the many attempts by black people to improve their position.

515B History of the Black Man in America Since 1860 (4)

Emancipation and its continuing effects on the black man in America. Life in the South, migration to the North and conservative and radical attempts by the black community to deal with these problems.

516A History of United States Foreign Relations to 1898 (4)

U.S. foreign relations from War of Independence to Spanish-American War. Development of traditional policies — isolationism, neutrality, Monroe Doctrine — and emergence of American approach to foreign policy.

516B History of United States Foreign Relations, 1898-1939 (4)

American foreign relations from War with Spain to outbreak of WW II. Attempts to adjust traditional policies and attitudes to new conditions produced by changes in world power structure and rise of U.S. as great power.

516C History of United States Foreign Relations, Since 1939 (4)

WW II and revolution in American foreign relations, Cold War and containment, search for peace and security in revolutionary era.

517A Ohio History to 1851 (4)

Moundbuilders and Indians, Anglo-French rivalry, Revolution, territorial development, patterns of settlement, Constitution of 1802, evolution of political parties, transportation and economy, banking and currency, Constitution of 1851.

517B Ohio History Since 1851 (4)

Slavery and restructuring of political parties; Civil War, rise of industry, politics in progressive era, Great Depression and aftermath, post-WW II Ohio.

518A Westward Movement: from Atlantic Seaboard to the Mississippi (4)

Expansion from first settlements on Atlantic seaboard to the Mississippi; explorations, Indian trade, land policies, pioneer life, territorial development and state making.

518B Westward Movement: Trans-Mississippi West (4)

Territorial acquisitions, trails and exploration, Indian affairs, railroads and types of later frontiers; influence of West upon American ideals and institutions.

519A Graduate Survey of United States History, 1607-1828 (4)

For teaching assistants for undergraduate U.S. history course.

519B Graduate Survey of United States History, 1828-1900 (4)

For teaching assistants for undergraduate U.S. history course.

519C Graduate Survey of United States History, Since 1900 (4)

For teaching assistants for undergraduate U.S. history course.

520 History of the Middle West (4)

Development of political, economic and social institutions; attitudes characteristic of Ohio and Middle West since 1787. Emphasis on 20th century community relationships, problems and forms of behavior.

521A History of the Military in America: 1600 to 1898 (4)

Military institution in American history; role of technology in warfare, innovations and reforms in the military; war and its conduct; military and civilian society in war and peace.

521B History of the Military in America: 1898 to Present (4)

Continuation of 521A.

522 Latin America in the 19th Century (4)

Causes of wars for independence; institutional adjustments during and after wars; problems of regionalism and caudillism; influence of liberalism and positivism in shaping Latin America republics; emphasis on Argentina, Brazil and Mexico.

523A Latin America: Colonial (4)

Prereq: perm. Pre-Columbian civilization; conquest and colonization; evolution of institutions; wars for independence.

523B Latin American Survey, National Period (4)

Demolition of colonial order and struggle for nationality in 19th century; 20th century reform, revolution and development of modern nation states.

525 Inter-American Relations (4)

Prereq: perm. Diplomatic history of Latin America since independence; state-to-state relations within Latin America; relations with U.S., western Europe and communist nations; participation in world wars and in international organization.

526A Recent Latin America: Argentina, Brazil and Mexico in the 20th Century (4)
 Reshaping and modernization of Mexico by revolution. Struggle to convert Argentine and Brazilian regionalisms, divided societies and resources into modern, urban, integrated nations.

526B Recent Latin America: Andean Nations in the 20th Century (4)
 Varied experience of Andean republics under onset of modernization.

526C Recent Latin America: Central America and the Island Republics in the 20th Century (4)

Influence of the U.S.; search for nationality and modernization. Special attention to Cuban history.

528 Greece in the 5th Century B.C. (4)

Political, social and cultural institutions of Greece in 5th century B.C. with special emphasis on city of Athens.

534 The Arab-Israeli Dispute (4)

History of Arab-Israeli confrontation since 1890. Origins of Zionism and Arab Nationalism, impact of WW I and Peace Settlement, British Mandate for Palestine, political developments in Israel and Arab World since 1948 and recent Great Power involvement in problem.

535A Islamic Civilization to 1800 (4)

Islamic history and civilization from rise of Islam to end of 18th century. Role of prophet Muhammad, doctrines and institutional system of Islam, medieval Islamic caliphates and their cultural achievements and contributions of Persians and Turks to Islamic civilization.

535B Middle East History Since 1800 (4)

History of Middle East since era of French Revolution. Disintegration of Ottoman Empire; emergence of contemporary Middle East political system; impact of nationalism, secularism and industrialism on the region, and position of Middle East in contemporary world affairs.

536A North Africa in Modern Times (4)

The Maghrib; its geography, ethnic composition and history since antiquity; French conquest of Algeria, Tunisia and Morocco; administrative systems; economic development; French-Muslim relations.

536B North Africa Since 1914 (4)

Rise of nationalism; struggle for political independence; political, economic and social problems in independent North Africa.

538A History of East Africa (4)

History of East Africa from early times to present, with emphasis on period since 1750. Although neighboring countries also studied, greatest attention paid to region which comprises present day Kenya, Uganda and Tanzania.

538B History of West Africa (4)

History of West Africa from early times to present: peopling of sudanic and forest regions; development of trade; Islam and rise of sudanic empires; slave trade and forest states; colonial era; independence movements; problems of nationalism.

541A Africa to the 17th Century (4)

Africa in the ancient world; spread of agriculture and iron working; rise of Islam; migrations of peoples; development of states; arrival of Europeans.

541B Africa from the 17th to the Late 19th Century (4)

Africa in 17th century; slave trade; religious revolutions in western Sudan; development of African states; commercial revolution of 19th century; birth of plural society in South Africa; European partition of Africa.

541C Africa from the Late 19th Century to the Present Day (4)

Establishment of European rule in Africa; colonial period; rise of nationalism; decolonization and independence; problems of modern Africa.

542A History of South Africa to 1899 (4)

Ancient man; Bantu migrations; coming of Europeans; conflict between Bantu, Boer and Briton. Rise of Zulus and Wars of Calamity; rise of colonial tensions and origins of Boer War.

542B South Africa in Recent Times (4)

Boer War; Union of South Africa; rise of parties and Age of the Generals. WW I; industrial and social conflict; WW II; Election of 1948 and emergence of Afrikaner nationalism.

544A History of Malaysia (4)

Political and cultural history of Malaysian or Indonesian peoples from 8th century A.D. through the mid-20th century. Indigenous values and institutions. Modification or displacement by experience with imperialism and modernization.

544B Burma and Thailand in Modern Times (4)

Comparative study of neighboring Buddhist states, their origins, their interrelations historically and culturally, varying impact of the colonial period and problems of post-war modernization.

544C History of Vietnam (4)

Assessment of the impact of 1000 years of Chinese rule to 939, development and expansion of the Vietnamese state to its decline in the late 19th century, the French colonial impact, achievement of independence by 1954 and relations of North and South in recent times.

544D Chinese in Southeast Asia (4)

Analytical survey of 2000 years of Chinese participation in affairs of Southeast Asia. Topics include Chinese role in Vietnam, Chinese imperialism in Southeast Asia, the Tribute System, immigration of Chinese into the area, their relationships with European colonial authorities and indigenous peoples and 20th century political problems.

545A Southeast Asia to 1820 (4)

Southeast Asian peoples, economic life, institutions and cultures, including borrowings from India and China; origins, classical period, European commercial impact down to post-Napoleonic period.

545B Southeast Asia: 1820-1945 (4)

Southeast Asia in early 19th century, British-Indian commercial hegemony, development of imperialist rivalry, patterns of investment, colonialism, its effects on Southeast Asian peoples, emergence of nationalistic protests between world wars, Japanese conquest and occupation.

545C Post-War Southeast Asia: Independence Problems (4)

Situation at end of war, achievement of independence, economic development and government problems; revolutions in Indochina; drift toward military rule in Thailand, Burma, South Vietnam, Indonesia; world orientation and America's role; regional prospects.

546A Traditional China to 1800 (4)

Growth and interaction of principal political, social and economic institutions of China from prehistoric times to decline of Imperial system in 1800s.

546B Modern China (4)

Weakness of empire in 1800s confronted by dynamic Western economic and political imperialism; response to pressures of nationalism from without and from within; great flux in modern Chinese society and politics.

548A Traditional Japan (4)

Development of Japan's early civilization including indigenous elements and those derived from Korea and China. Political development of Japan leading to its position vis-a-vis the Western nations in the 19th century.

548B Modern Japan (4)

Political weakness of Tokugawa system leading to opening of Japan to Western trade and restoration of Emperor; favorable economic and political base which allowed Japan to enter successfully into competitions with European nations; Japan's ultranational era and post-war reconstruction.

551 Medieval People (4)

Inquiries in depth into lives and epochs of representative individuals of medieval Europe. A look at the Middle Ages through biography.

552 Medieval Civilization (4)

Transmission of Christianity and classical culture to barbarians and their work of combining the 2 into a new civilization in early Middle Ages. Medieval civilization at its height: church, schools and scholastic thought and secular culture.

556A Italian Renaissance (4)

Major political, social, economic and cultural currents of Italian city-states from 1150 to 1550. Focus on Dante, Petrarch, Boccaccio, Bruni, Machiavelli, Guicciardini, Michelangelo, Leonardo da Vinci, etc.

556B Northern Renaissance (4)

History of Renaissance outside Italy: politics, economics, sociology and intellectual currents of Germany, France, Spain, Burgundy and England from 1300 to 1600. Treated thematically, course focuses on Erasmus, More, Ximenes, Reuchlin, Hutten and Bude, etc.

556C Reformation (4)

Protestant, Catholic and Counter-Reformations in Europe, showing their relationship to social, political, economic and religious movements of 15th and 16th centuries. Roles of Luther, Zwingli, Calvin, Cranmer, Erasmus, Loyola, etc; Protestant and Catholic Churches and Sects in western and eastern Europe.

558A Early Modern Europe, 1559-1648 (4)

Main political, economic and cultural developments. Rise of dynastic states, wars of religion, ideological struggles.

558B Early Modern Europe, 1648-1715 (4)

Main political, economic and cultural developments. Overseas expansion, commercial revolution, rise of absolutism, scientific revolution and Thirty Years' War.

558C Early Modern Europe, 1715-1774 (4)

Main political, economic and cultural developments. Industrialism and capitalism, absolutism, balance of power, intellectual revolution and Enlightenment.

562A Europe, 1814-1871 (4)

Europe from Congress of Vienna through Franco-Prussian War. Growth of liberalism and nationalism, revolutions of 1830 and 1848, Industrial Revolution, unification of Italy and Germany, social and intellectual movements.

562B Europe, 1871-1914 (4)

Development of Austria-Hungary, France, Italy, Germany, Great Britain and Russia including imperialism. Background of WW I and social and intellectual movements.

564A Europe between World Wars (4)

Fascism, communism and the 20-Year Armistice between 1919 and 1939.

564B Contemporary Europe (4)

Problems of peace and war in Europe since 1939.

566A Modern France in 19th Century (4)

Evolution of France as monarchy, empire and republic.

566B Modern France in 20th Century (4)

Republican France.

568A Modern Germany in 19th Century (4)

Germany and Central Europe from age of Napoleon to fall of Bismarck.

568B Modern Germany in 20th Century (4)

Germany and Central Europe since advent of Wilhelm II.

570 History of the Byzantine Empire 324-1453

(4)

Decay of the Roman world and emergence of a Christian Empire, 324-717; Medieval Roman Empire, 717-1056; weakening of Central Administration and apparent revival under the Comneni, 1025-1204; Byzantium and the neighboring world, 1204-1453; church and state; education and learning; Byzantine art; social, political and military developments.

572A Balkans in Early Modern Period, 1453-1804 (4)

Ethnographic structure of Balkan peoples under rule of Ottoman Empire. Ottoman institutions and society; political, social, economic, religious and cultural developments in the Balkans in 15th, 16th, 17th and 18th centuries.

572B Balkans in 19th Century, 1804-1878 (4)

Evolution of modern Balkan nationalism and rise of Balkan states. Ottoman dissolution and Balkan revolutionary nationalism; political, social, economic, religious and intellectual developments; domestic Balkan policy and foreign intervention.

572C Balkans in 20th Century, 1878 to Present (4)

Historical, cultural and ethnic background of Balkan peoples. Social, economic, political and intellectual developments in the Balkans; communization of Southeast European states.

574A History of European Diplomacy, 1814-1914 (4)

Diplomatic history from Congress of Vienna to WW I. Age of Metternich, Italian and German unification, new imperialism and pre-war alliances and alignments.

574B History of International Diplomacy, 1914-1939 (4)

International problems of peace and war, international organization and alliances.

574C History of International Diplomacy, 1939 to Present (4)

International problems of peace and war on a world wide scale since 1939, international organization and alliances, adjustment to collapse of European imperialism.

578A European Social and Intellectual History (4)

Intellectual currents of Enlightenment and transition to Romantic movement.

578B European Social and Intellectual History, 1850-1914 (4)

Evolution of middle class views with emphasis on liberalism, nationalism, racism and imperialism; impact of Darwinism, rise of Positivism; development of International Socialism, Neo-romanticism and Revolt against Positivism.

578C European Social and Intellectual History Since 1914 (4)

Crisis in liberalism and impact of Bolshevik Revolution; discoveries in realm of subconscious; ideas of international communism, national socialism and fascism; existential crisis.

579 The Development of Modern Science (4)
Survey of development of science from Renaissance. History of physical and natural sciences in ages of Copernicus, Newton, Linnaeus and Darwin.

582A History of Russia (4)
Russia from earliest times to 1881. Kievan Russia, Muscovy, emergence of Tsarist Russia. Territorial expansion and role as great power in Europe and Asia.

582B The Communist Revolution (4)
Tsarist Russia to Soviet Union, 1881-1924; background for revolution. Bolshevik seizure of power and consolidation of dictatorship.

582C Soviet Union (4)
Soviet Union since death of Lenin (1924); internal affairs of Communist regime.

589 Later Medieval England, 1307-1485 (4)
Comprehensive examination of political, social, intellectual, ecclesiastical and economic aspects of period.

590A Tudor England (4)
England in 16th century. Tudor absolutism, English Reformation and major cultural and economic developments of Shakespeare's England.

590B Stuart England (4)
England in 17th century. Constitutional crisis of Stuart period, Republican experiment under Cromwell, beginnings of Empire and major cultural and economic developments.

591A English History to 1688 (4)
Stresses institutional aspects of medieval England and social, political and constitutional developments in Tudor and Stuart periods.

591B English History Since 1688 (4)
Emphasizes cultural and economic developments, growth of British Empire, constitutional and social reforms and impact of WW I and WW II.

592A United Kingdom in 18th Century (4)
Political, social, intellectual, cultural and economic developments of England in years prior to and during American and French Revolutions.

592B United Kingdom in 19th Century (4)
History; major political, cultural and economic trends.

592C United Kingdom in 20th Century (4)
History; political, cultural and economic developments.

594A The Medieval English Constitution (4)
English government from Anglo-Saxon times to end of Middle Ages. Growth of machinery of monarchy, central administration, courts and common law. Rise of Parliament.

594B The Modern English Constitution (4)
Emergence of modern English constitution during 16th and 17th centuries; creation and growth of Tudor Constitution; significance of English Reformation for constitution; Tudor Parliament; "Century of Revolution" (1603-1689) and crisis of constitution; problems of sovereignty and obligation; constitution today.

596A British Empire-Commonwealth: Georgian Era (4)
British Empire from 18th century to Age of Reform. Formulation of colonial policy, growth of empire and internal development of parts.

596B British Empire-Commonwealth: Victorian Era (4)
British Empire from Age of Reform to WW I. Formulation of colonial policy, growth of empire and internal development of parts.

596C British Empire-Commonwealth: 20th Century (4)
Evolution of Empire into Commonwealth during present century. Factors involved and historical development of parts.

597A Representative Historians and Their Writings: American History Emphasis (4)
Typical historians from time of Herodotus. Readings from their masterpieces to illustrate schools of interpretation, philosophies of history and development of historical writing. Noteworthy historians in American history.

597B Representative Historians and Their Writings: European History Emphasis (4)
Typical historians from time of Herodotus. Readings from their masterpieces to illustrate schools of interpretation, philosophies of history and development of historical writing. Noteworthy historians in European history.

598A Problems in History (American) (1-6)
Prereq: 24 hrs, perm. Intensive individual work either in research or individual systematic reading along lines of student's special interest and under supervision of staff members.

598B Problems in History (European) (1-6)
Prereq: 24 hrs, perm. Intensive individual work either in research or individual systematic reading along lines of student's special interest and under supervision of staff members.

598C Problems in History (World) (1-6)
Prereq: 24 hrs, perm. Intensive individual work either in research or individual systematic reading along lines of student's special interest and under supervision of staff members.

598D Problems in History (General) (1-6)
Prereq: 24 hrs, perm. Intensive individual work either in research or individual systematic reading along lines of student's special interest and under supervision of staff members.

599A Graduate Survey of Western Civilization, 1450-1648 (4)
For teaching assistants for undergraduate History of Western Civilization course.

599B Graduate Survey of Western Civilization, 1648-1848 (4)
For teaching assistants for undergraduate History of Western Civilization course.

599C Graduate Survey of Western Civilization, Since 1848 (4)
For teaching assistants for undergraduate History of Western Civilization course.

600 Seminar: Colonial and Revolutionary America (8)
Prereq: grad rank. Readings and research in U.S. history prior to 1789. Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

601A Colloquium in Colonial American History (4)
Literature and source materials; readings and reports.

601B Colloquium in the Era of the American Revolution (4)
Literature and source materials; readings and reports.

605 Colloquium in Foundation of the American Republic, 1783-1819 (4)
Literature and source materials in field of early national period of American history; readings and reports.

607 Colloquium in Era of Sectional Controversy, 1819-1850 (4)
Literature and source materials; readings and reports.

608 Seminar in United States History, 1850-1900 (8)
Prereq: grad rank. Selected topics in political history of United States in late 19th century. Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

609 Colloquium in Era of Foundations of Modern America, 1850-1900 (4)
Literature and source materials; readings and reports.

610 Seminar in 20th Century United States History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

611 Colloquium in History of the United States in Recent Times (4)
Literature and source materials; readings and reports.

614 Seminar in the Social and Cultural History of the United States (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

615 Colloquium in Social and Cultural History of the United States (4)
Literature and source materials; readings and reports.

616 Seminar in History of United States Foreign Relations (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

617 Colloquium in History of American Foreign Relations (4)
Literature and source materials; readings and reports.

621 Colloquium in Regional United States History (4)
Literature and source materials; readings and reports.

623 Colloquium in Latin American History, 1750-1880 (4)
Literature and source materials; readings and reports.

627 Colloquium in Recent Latin American History (4)
Literature and source materials; readings and reports.

629 Colloquium in History of Ancient Greece (4)
Literature and source material of ancient Greek civilization. Themes vary from yr to yr. May be repeated for credit.

635 Colloquium in Middle East History (4)
Literature and source materials on Middle East since 1914; readings and reports.

640 Seminar in African History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

641 Colloquium in African History (4)
Literature and source materials; readings and reports.

644 Seminar: Southeast Asia (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

645 Colloquium in History of Southeast Asia (4)
Literature of Southeast Asian history, general culture, developments in 19th and 20th centuries; readings and reports.

646 Seminar: East Asia History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

649 Colloquium in History of East Asia in Modern Times (4)
Historical literature relating to process of modernization of China and Japan from 1860s to 1960s. Readings and reports.

661 Colloquium in French Revolution (4)
Historical factors as causality, influence of ideology, institutional organization and role of individual in great social unheaval.

662 Seminar in 19th Century European History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

663 Colloquium in 19th Century Europe (4)
Literature and source materials; readings and reports.

664 Seminar in 20th Century European History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr study completed.

667 Colloquium in Modern France (4)
Literature and source materials; readings and reports.

674 Seminar in European Diplomacy Since 1815 (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

683 Colloquium in Russian and Soviet History (4)
Literature and source materials; readings and reports.

691 Colloquium in English History to 1714 (4)
Early modern English history from multi-disciplinary perspectives.

693 Colloquium in British History Since 1714 (4)
Literature and source materials; readings and reports.

695 Thesis (as recommended by dept)

800 Seminar: Colonial and Revolutionary America (8)
Prereq: grad rank. Readings and research in U.S. history prior to 1789. Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

801A Colloquium in Colonial American History (4)
Literature and source materials; readings and reports.

801B Colloquium of the Era of the American Revolution (4)
Literature and source materials; readings and reports.

805 Colloquium in Foundations of the American Republic, 1783-1819 (4)
Literature and source materials in field of early national period of American history; readings and reports.

807 Colloquium of the Era of Sectional Controversy, 1819-1850 (4)
Literature and source materials; readings and reports.

808 Seminar in United States History, 1850-1900 (8)
Prereq: grad rank. Selected topics in political history of United States in late 19th century. Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

809 Colloquium in Era of Foundation of Modern America, 1850-1900 (4)
Literature and source materials; readings and reports.

810 Seminar in 20th Century United States History (8)
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

811 **Colloquium in History of the United States in Recent Times (4)**
Literature and source materials; readings and reports.

814 **Seminar in the Social and Cultural History of the United States (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

815 **Colloquium in Social and Cultural History of the United States (4)**
Literature and source materials; readings and reports.

816 **Seminar in History of United States Foreign Relations (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

817 **Colloquium in History of American Foreign Relations (4)**
Literature and source materials; readings and reports.

821 **Colloquium in Regional United States History (4)**
Literature and source materials; readings and reports.

823 **Colloquium in Latin American History, 1750-1880 (4)**
Literature and source materials; readings and reports.

827 **Colloquium in Recent Latin American History (4)**
Literature and source materials; readings and reports.

835 **Colloquium in Middle East History (4)**
Literature and source materials on Middle East since 1914; readings and reports.

840 **Seminar in African History (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

841 **Colloquium in African History (4)**
Literature and source materials; readings and reports.

844 **Seminar: Southeast Asia (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

845 **Colloquium in History of Southeast Asia (4)**
Literature of Southeast Asian history, general culture, developments in 19th and 20th centuries; readings and reports.

846 **Seminar: East Asia History (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

849 **Colloquium in History of East Asia in Modern Times (4)**
Historical literature relating to process of modernization of China and Japan from 1860s to 1960s. Readings and reports.

861 **Colloquium in French Revolution (4)**
Historical factors as causality, influence of ideology, institutional organization and role of individual in great social upheaval.

862 **Seminar in 19th Century European History (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

863 **Colloquium in 19th Century Europe (4)**
Literature and source materials; readings and reports.

864 **Seminar in 20th Century European History (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

867 **Colloquium in Modern France (4)**
Literature and source materials; readings and reports.

874 **Seminar in European Diplomacy Since 1815 (8)**
Presented in 2-qtr sequence. No credit granted until 2nd qtr is completed.

883 **Colloquium in Russian and Soviet History (4)**
Literature and source materials; readings and reports.

891 **Colloquium in Early Modern English History (4)**
Prereq: 24 hrs, perm. Studies in early modern English history from multi-disciplinary perspectives.

893 **Colloquium in British History Since 1714 (4)**
Literature and source materials; readings and reports.

895 **Dissertation (as recommended by dept)**

HOME ECONOMICS

General Home Economics

Child Development and Family Life

Foods and Nutrition

Home Economics Education

Housing, Furnishings and Management

Textiles and Clothing

Interdivisional Program

A student desiring a master's degree with a major in home economics must have a minimum of 20 quarter hours of undergraduate preparation in the field of home economics in which he wishes to specialize and/or in approved related fields. For a student majoring in home economics education, a minimum of 24 quarter hours of undergraduate credit distributed among at least three areas of home economics is required.

A student may take 12 to 18 hours of work in an area of home economics other than his major area, or in approved related fields.

All graduate programs in home economics are planned by the student and his adviser, taking into consideration the undergraduate training and the professional goals of the student. Requirements vary, depending upon the type of program selected —(a) with thesis, (b) without thesis or (c) inter-divisional program.

General Home Economics

579A **Workshops in Home Economics (2-6)**
Prereq: teaching experience or perm. (summer). Special workshops for in-service training of home economics teachers. 579A—home economics education.

579B Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579B—clothing and textiles.

579C Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579C—food and nutrition.

579D Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579D—child development.

579E Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579E—consumer economics.

579F Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579F—home furnishings.

579G Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579G—home management.

579H Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579H—household equipment.

579I Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579I—school lunch management.

579J Workshop in Home Economics (2-6)
 Prereq: teaching experience or perm. (summer). Continuation of series beginning with 579A. See 579A for general description. 579J—family life education.

659A Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Special seminars or workshops for international students or for home economics majors who want to prepare for international service. Lec, lab and field trips. 659A—world food supply and human nutrition.

659B Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659B—sanitation and health problems.

659C Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659C—cultural, religious and social influences on family life.

659D Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659D—cultural, religious and social influences on food patterns and nutrition.

659E Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659E—working with low-income and disadvantaged families.

659F Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659F—home and community development, including home management.

659G Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659G—infant and child care services.

659H Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659H—establishing home economics extension and other adult programs in developing countries of the world.

659I Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659I—curriculum studies and evaluation of international home economics programs at elementary and secondary levels.

659J Home Economics Seminar, Workshop or Short Course in International Service (2-4)

Prereq: perm. Continuation of series beginning with 659A. See 659A for general description. 659J—curriculum studies and evaluation of international home economics programs and research in higher education.

691A Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Research and recent developments in child development and family life.

691B Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Continuation of series beginning with 691A. See 691A for general description. 691B—foods and nutrition.

691C Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Continuation of series beginning with 691A. See 691A for general description. 691C—home economics education.

691D Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Continuation of series beginning with 691A. See 691A for general description. 691D—housing and management.

691E Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Continuation of series beginning with 691A. See 691A for general description. 691E—textiles and clothing.

691F Seminar in Home Economics (2-4)

Prereq: perm of dept chairman. Continuation of series beginning with 691A. See 691A for general description. 691F—research.

692 Research (2-4, max 8)

Prereq: perm. Independent investigation in 1 of the 5 areas of home economics.

695 Thesis (2-10)

Prereq: approval by chairman of dept in which work is performed.

Child Development and Family Life

562 Readings in Child Development and/or Family Living (3-6, max 10)

Prereq: perm. Basic research, theory writings, current controversies and trends relative to growth and behavior of children and in family living. Experience in abstracting materials from current sources.

563 Preschool Administration (5)

Prereq: perm. Problems in organizing and administering preschools, play groups and Head Start programs. Field trips.

571 Family Life Education (4)

Prereq: perm. (winter, summer). Selected fundamental educational problems explored. Examination of various dimensions of teacher's role and critical appraisal of student's professional competency to teach classes in family relations. Field trips to selected family life education programs.

664 Advanced Child Development (5)

Prereq: perm. (fall). Theories and principles of child development as advanced by various disciplines. Field work, including independent project.

665 Parent Education (4)

Prereq: 562. Supervised experience in organizing, formulating, conducting and evaluating discussion groups, classes, programs and individual conferences for parents and youth leaders. One qtr advanced registration with department of child development and family life required.

669 Studies in Child Development (2-5)

Prereq: 562. Depth study in selected area.

674 Advanced Family Development (5)

Prereq: 562. Specific conceptual schemes of major theorists in various areas of home economics relative to broad issues of philosophy and values. Consideration of differential amenability of various areas in procedures to problems of family development.

675 Introduction to Principles of Family Consulting (4)

Prereq: 674 or perm. Development of operational definitions, theoretical formulations and illustration applicable to its uniqueness.

679 Studies in Family Relationships (2-5)

Prereq: 562. Depth study in selected area.

Foods and Nutrition

522 Experimental Foods (4)

Prereq: perm. (spring). Factors which affect results obtained from food processes. Experimental work under controlled conditions. 2 lec, 3 lab.

523 Comparative Studies in Food (4)

Prereq: perm. (winter). Factors affecting palatability and nutritive value of foods; taste panels, preference surveys, elements of food industry. 2 lec, 3 lab.

525 Readings in Foods and Nutrition (2-4, max 8)

Critical review of current literature with emphasis on modern theory and practice in food preparation and production or nutrition.

526 Cultural and Nutritional Aspects of Foods (3)

Prereq: perm. (fall). Food patterns and practices of various cultural groups. Evaluation of these patterns in meeting dietary needs and factors contributing to these patterns.

528 Advanced Nutrition (4)

Prereq: perm. (fall). Nutrition and evaluation of current research as applied to dietary practices for all age groups. Computation of nutritive values of dietaries. 2 lec, 4 lab.

529 Community Nutrition (3)

Prereq: perm. (spring). Nutrition needs and practices in agencies serving community such as social welfare, home economics extension, public health and school lunch. Nutrition work with low-income families. Some field work. 2 lec, 2 lab.

530 Diet Therapy (4)

Prereq: perm. (winter). Principles of nutrition in feeding individuals. Use of diet in prevention and treatment of disease. Problems in planning and preparing therapeutic diets.

531 Studies in the Science of Nutrition (3-4, max 8)

Nutrition as related to physiological and metabolic processes. Review and critical analysis of research in field. 2 lec, 3 lab.

532 Infant and Child Nutrition (3)

Prereq: perm. (fall). Dietary factors related to nutritional status in pregnancy, infancy, preschool and school age children. Contribution of nutrition education and school lunch program in school curriculum. 2 lec, 2 lab.

535 Purchasing and Cost Control (4)

Prereq: perm. (winter). Production, distribution and storage of food supplies. Purchase of such commodities for quantity use. Cost control system. 2 lec, 4 lab.

536 Equipment, Maintenance and Layout (4)

Prereq: perm. (winter). Food service layout, selection of equipment and furnishings; materials, construction, installation, operation, care and relative cost. 3 lec, 2 lab.

537 Organization and Management (3)

Prereq: perm. (spring). Organization and administration applied to food service operations in public and private institutions. Administration of labor and standards of work.

538 Advanced Food Production Management (2-4)

Prereq: perm. (winter). Individual studies and laboratory experiences in management of personnel and cost control procedures.

624 Advanced Food Science (3-4)

Prereq: perm. Chemical and physical behavior of basic food constituents and their influence on characteristics and nutritive value of foods.

626 Methods of Food and Nutrition Investigation (3-4, max 8)

Prereq: 531 or 624. Biological and chemical methods used for analysis of various nutrients and constituents in foods and biological materials. Nutrition research using human subjects or food technology.

627 Studies in Foods and Nutrition (3-5, max 10)

Prereq: 522 or 531. Intensive study of selected topic in foods or nutrition. May include lab work.

Home Economics Education

543 Vocational Home Economics (4)

Prereq: teaching experience in home economics. (summer). History and philosophy of vocational homemaking education. Contemporary trends, methods, sources of materials and evaluation. Observation arranged.

544 Home Economics in Adult Education (4)

Prereq: perm. Organization procedures, curriculum materials and methods of conducting adult education groups in education for family living and wage earning.

545 Current Developments in Home Economics Education (4)

Prereq: perm. Trends and development at secondary and post-high school levels in relation to curricular developments, evaluation procedures, legislation affecting programs and research.

550 Problems in Teaching Home Economics (2-4, max 6)

Prereq: teaching experience. Individual problems.

640 Supervision in Home Economics (4)

Prereq: teaching experience in home economics. Leadership functions, principles and practices involved in effective supervision in home economics. For those interested in supervising student teachers or in-service programs at local, state or national level.

646 Home Economics in Higher Education (4)

Prereq: perm. Basic philosophy and issues concerning place of home economics in higher education today. General trends in curriculum offering, teaching practices, evaluation, administration and research. For those interested in teaching home economics at college level.

650 Studies in Home Economics Education (2-4, max 8)

Prereq: teaching experience in home economics. Intensive study of some phase of home economics education.

Housing, Furnishings and Management

580 Advanced Home Furnishings (3)

Prereq: perm. (fall, winter). Qualities and styles of furniture and furnishings. Emphasis on periods of past and their esthetic influence on present. Practical projects in decorating and furnishing a home.

581 Contemporary Design in Furnishing (3)

Prereq: perm. (spring). Furnishings and interiors of present era; factors that have influenced development of contemporary design; important designers and their work.

582 Design in Home Accessories (3)

Prereq: perm. (winter). Esthetic study of development of design in accessories of glass, pottery, oriental rugs, metal such as silver and pewter. Use of accessories in home and in displays.

592 Household Equipment Techniques (3)

Prereq: perm. Critical analysis of home equipment relative to durability and effective use. 1 lec, 4 lab.

595 Advanced Home Management (3)

Prereq: perm. Over-all view of home management; development of its present principles and concepts; contributions of other disciplines to home management.

639 Studies in Household Equipment and/or Management (2-4, max 8)

Prereq: perm. Individual study in selected area of home management and/or household equipment under supervision.

Textiles and Clothing

502 Flat Pattern Design (4)

Prereq: perm. Emphasis on fitting techniques. Use and understanding of commercial patterns. 2 lec, 4 lab.

505 History of Costume and Textiles (3)

Prereq: perm. (fall). Costume and textiles through the ages as reflection of historical period and source for present day design.

507 Textile and Fashion Industry (5)

Prereq: perm. Problems confronting buyer of textile products as related to specific manufacturing situations involved.

517 Readings in Textiles and/or Clothing (2-4, max 8)

Prereq: perm. Analysis and interpretation of current writings and research with emphasis on new developments and trends.

609 Psychological, Social and Economic Aspects of Clothing (4)

Prereq: perm. Contemporary uses and roles of textiles and clothing as affected by economic, social and psychological forces seen in historic perspective.

612 Advanced Studies in Clothing (2-4)

Prereq: perm. Advanced problems and techniques in clothing construction. Emphasis on scientific principles of construction and experimental methods and fabrics. 3 lec, 3 lab.

615 Advanced Studies in Textiles (2-4)

Prereq: perm. Physical and chemical examination of fibers and fabrics with emphasis on application of testing techniques as applied to individual textile studies. 1 lec, lab hrs arranged.

INDONESIAN

(See Foreign Languages and Literatures)

INDUSTRIAL AND SYSTEMS ENGINEERING

(See Engineering, Industrial and Systems)

INDUSTRIAL TECHNOLOGY

Potential graduate students are expected to have previous undergraduate preparation of at least 36 quarter hours in technically oriented courses. Conditional admission may be granted, subject to early completion of specified undergraduate courses, concurrently with beginning graduate studies.

First registration in 681-Research should be during the first or second quarter of study. Recommendation from the departmental graduate committee concerning selection between thesis and nonthesis plans will be given, as based upon the proposal submitted during this course.

527 Current Trends (3)

Identification and study of changing patterns as means of prediction and guidance for potential responsibility. 3 lec.

550 Advanced Work in Technical Areas (3, max 12)

Extension of capability in technical activity beyond the level of basic competence. May be repeated in different areas for maximum credit of 12 hrs. 6 lab.

590 Special Problems (3-5)

Individual experimentation and research of professional problem. Identification of problems and planning effective attack toward potential solution.

591 Reading in Technology (3, max 9)

Required of all full-time majors when enrolled during fall, winter or spring qtr. Core subject, or guide reading, chosen in consultation with major adviser during 1st wk of term. This may not be in area of current research or other course enrollment. Written abstracts of readings presented weekly.

681 Research (2-3, max 10)

First enrollment is for purpose of selecting and planning potential graduate research. Plan must be approved by graduate committee before the project is conducted. Campus registration required during term that final report is being prepared.

691 Seminar (3-5, max 12)

Topics to be announced. Reenrollment permitted when topics are changed.

695 Thesis (1-15)

INTERNATIONAL AFFAIRS

The Center for International Studies of Ohio University offers an interdisciplinary master of arts degree in international affairs. The student may concentrate his work on the culture, the institutions and one of the languages of a major world region such as Africa, Southeast Asia or Latin America, or may with the help of an adviser develop a program of courses which would give him a knowledge of international problems and institutions. The degree is intended to give the individual freedom to develop a program best suited to his academic and professional requirements from a large number of courses and seminars offered each year.

Students are required to complete a minimum of 45 quarter hours. Courses dealing with a major world area such as Asia, Africa or Latin America or courses with international content should be selected from not fewer than three of the following disciplines: art (art history, comparative arts), business administration, communication, economics, education, English (literature), finance, geography, government, history, philosophy, sociology/anthropology. A minimum of 12 hours must be in seminar work.

Students are required to demonstrate an acceptable level of achievement in an Asian, African, Latin American or (in some cases) European language other than English and pertaining to the area of concentration. Acceptable level of achievement may be demonstrated in either of the following ways: (1) Complete satisfactorily a minimum of one academic year (generally nine credit hours) in one of the following languages currently taught at Ohio University: Chinese (Mandarin), Hausa, Indonesian/Malay or Swahili. These credit hours cannot be counted as one of the discipline requirements, but may be used to complete the 45 hours required for the degree. In the Latin American Program an intermediate level in either Spanish or Portuguese is required for the degree. Language credit hours cannot be counted toward one of the discipline requirements nor may they be used to complete the 45 hours needed for the degree. (2) Examination by the center or evidence of acceptable level of achievement in examination administered by other recognized testing agencies.

A thesis may be written if it contributes to the student's academic and professional goals, but it is not required. The number of credits granted for the thesis will be determined by a committee of representatives of the center and of the academic area in which the thesis is written.

The criteria for admission are: a baccalaureate degree from an accredited college or university; a good undergraduate record usually including a minimum of 3.0 average in the undergraduate major and three letters of recommendation. The letters, usually from faculty with whom courses have been taken or from supervisors, should deal with the applicant's motivation, intellectual and academic capacity and potential and work experience.

The Center for International Studies is responsible for the following courses:

500 Introduction to African, Asian and Latin American Studies (2)

An interdisciplinary introduction to graduate study of Africa, Asia and Latin America, including research methodologies and the nature of area studies.

601 Seminar in Development (4)

An interdisciplinary investigation into selected problems of development. Intended to provide an interdisciplinary perspective into the nature of sociological, political, economic and psychological change in Africa, Asia and Latin America.

Below is a list of principal courses relevant to international studies in Africa, Southeast Asia or Latin America. Please check the complete course description under the various departments.

Anthropology

566	Cultures of the Americas
571	Ethnology
577	Peasant Communities
581	Cultures of Sub-Saharan Africa
585	Cultures of Southeast Asia
586	Problems in Southeast Asian Research
588	Cultures of the Middle East
594	Seminar in Anthropology
599	Readings in Anthropology

Art History

530	The Arts of the Orient
531	Pre-Columbian Art
532	African Art
781	Individual Readings

Economics

518	Agricultural Development
520	Economic Development
521	African Economic Development
522	Chinese Economy
523	Economy of Latin America
524	Economics of Southeast Asia
525	Comparative Economic Systems
580	International Economics
691	Seminar in Economics
693	Readings in Economics

Education, International Comparative

520	Comparative Cultures and Education
525A	Education and Development in Africa
525B	Education and Development in Asia
525C	Education and Development in Latin America
532	Perspectives in International Education

English Language and Literature

306A,B	Studies in Oriental Literature
306C	Malay/Indonesian Literature

Finance

555	International Finance
651	Seminar in International Finance

Foreign Languages and Literatures	544C	History of Vietnam
Spanish	544D	Chinese in Southeast Asia
543 Spanish-American Literature	545A	Southeast Asia to 1820
544 Spanish-American Literature	545B	Southeast Asia: 1820-1945
547 Themes from Spanish-American Prose	545C	Post War Southeast Asia: Independence Problems
548 Contemporary Latin American Literature	546A	Traditional China to 1800
	546B	Modern China
	548A	Traditional Japan
	548B	Modern Japan
African and Asian Languages	598	Directed Study and Research
571-2-3 Elementary Hausa	623	Colloquium in Latin American History: 1750-1880
574-5-6 Intermediate Hausa	627	Colloquium in Recent Latin American History
577-8-9 Advanced Hausa	635	Colloquium in Middle East History
571-2-3 Elementary Chinese	640	Seminar in African History
574-5-6 Intermediate Chinese	641	Colloquium in African History
577-8-9 Advanced Chinese	644	Seminar: Southeast Asia
571-2-3 Elementary Indonesian/Malay	645	Colloquium in the History of Southeast Asia
574-5-6 Intermediate Indonesian/Malay	646	Seminar: East Asia History
577-8-9 Advanced Indonesian/Malay	649	Colloquium in History of East Asia in Modern Times
571-2-3 Elementary Swahili		
574-5-6 Intermediate Swahili		
577-8-9 Advanced Swahili		
595 Area Linguistics—Malay/Polynesian Languages in Contact		
Geography		
545 Southeast Asia I	548	Interpersonal Communication
546 Southeast Asia II		Cross-Cultural Communication
550 Geography of Northern Africa		
551 Geography of Sub-Saharan Africa I		
552 Geography of Sub-Saharan Africa II		
555 Geography of South America		
556 Geography of Middle America		
690 Geographic Studies		
Government		
534A,B Government and Politics of Latin America	566	International Communications
541 Government and Politics of Africa	567	Foreign Correspondence
544 Race and Politics in Southern Africa	666	Seminar in International Communications
545 Government and Politics of Japan		
546 Government and Politics of China		
547A,B Government and Politics of Southeast Asia		
555 International Law	584	Management
561 New States in World Politics		International Comparative Management
579 Latin American Political Thought		
590 Studies in Government		
591 Research in Government		
598 Problems in Government		
611 Seminar in Comparative Government		
648 Political Systems of Southeast Asia		
History		
522 Latin America in 19th Century	541	Marketing
523A Latin America: Colonial		International Marketing
523B Latin American Survey, National Period		
525 Inter-American Relations		
526A Recent Latin America: Argentina, Brazil and Mexico in 20th Century		
526B Recent Latin America: Andean Nations in the 20th Century		
526C Recent Latin America: Central America and the Island Republics in 20th Century		
535A Islamic Civilization to 1800		
535B Middle East History Since 1800		
536A North Africa in Modern Times		
536B North Africa Since 1914		
538A History of East Africa		
538B History of West Africa		
541A Africa to the 17th Century		
541B Africa from the 17th to the Late 19th Century		
541C Africa from the Late 19th Century to the Present Day		
542A History of South Africa to 1899		
542B South Africa in Recent Times		
544A History of Malaysia		
544B Burma and Thailand in Modern Times		

INTERPERSONAL COMMUNICATION

Graduate study in the School of Interpersonal Communication is based on the principle that the program of study of each student be tailored to his individual needs and capabilities, based upon his background and professional goals. After completing his particular degree requirements, the student is expected to have the appropriately broadened perspectives and attitudes of a generalist, with the commensurate knowledge and skills of a specialist.

Both the MA and PhD degrees are offered; the appropriate degree may be pursued by the student through study and research typically in one or more of the following primary areas: (1) communication theory and process, (2) organizational communication, (3) rhetoric and public address, (4) speech education. Additional primary areas representing emerging emphases (e.g., information systems, intercultural communication, etc.) are also possible, depending upon the recommendation of the student's advisory committee.

MASTER'S PROGRAM

To be admitted *unconditionally*, a student must have completed the bachelor's degree at a duly accredited institution, and have demonstrated the capacity to pursue study on the master's level. Evidence of such capacity will be assumed from his prior personal, professional and academic experiences as revealed in such indicators as his recommendations and undergraduate grade-point average.

Two procedural tracks are available to the master's student: nonthesis and thesis. The latter emphasizes independent research, while the former stresses exposure to a greater number of formal course offerings. The nonthesis option typically shall be considered a terminal degree in this school. The student must declare his option prior to the completion of 15 hours of graded course credit at Ohio University.

At least 45 quarter hours of credit are required for the master's degree, whether thesis or nonthesis. A maximum of 12 quarter hours of graduate credit with grades of *A* or *B* may be accepted by transfer from approved institutions which offer the master's degree, provided the transferred coursework is acceptable to the student's advisory committee and is *not more than five years old*. At least 33 quarter hours of graduate credit must be earned on the Athens campus.

DOCTORAL PROGRAM

To be admitted *unconditionally*, a student must have received the master's degree or completed equivalent work (as approved by the Graduate Committee) at a duly accredited institution. If the applicant's master's degree did not include a thesis, he must present for evaluation by the Graduate Committee other evidence of his scholarly writing ability. Additional evidence of the student's ability to pursue study at the doctoral level is required, as documented from his previous personal, professional and academic experiences.

At least 72 quarter hours of credit beyond the master's degree (or its equivalent) are required for the doctor of philosophy degree, plus a satisfactory dissertation. A maximum of 16 quarter hours of post-master's degree graduate credit with *A* or *B* grades may be accepted by transfer from approved institutions which offer post-master's (doctoral level) work for application to the student's primary area, and eight hours of such work for application to each related area, provided the transfer work is not more than five years old, and is acceptable to the student's advisory committee, the Graduate Committee and the Dean of the Graduate College. At least 48 quarter hours of doctoral credit must be earned on the campus of Ohio University. At least three consecutive quarters must be spent in an institutional full-time status on the Athens campus.

501 Introduction to Graduate Study (5)

Definition of "field" of communication, methods of structuring field and research concerns within areas of field. Examination of theory and function of "research." Analysis of representative types and methods of research, including reporting results.

505 Principles of Conference Leadership (4)

Prereq: perm, jr rank. Group process applied to problem solving. Designed to provide participant with comprehensive overview of principles, methods and theories of leadership and conference/seminar/workshop planning, coordination and conduction.

525 Direction of Forensic Programs (3)

Organization of forensic programs, management of contests and tournaments, principles of coaching and judging. Practical application in University forensic programs.

532 Creativity in Communication (4)

Creativity and creative process with direct application to interpersonal communication.

533 Applications of General Semantics (4)

Chief formulations from general semantics and their applications to field of communication.

535 Theories of Argument (3)

Relations between formal logic and rhetorical systems of arguments; intensive study of fallacies and of experimental findings related to study of argument.

542 Communication and Persuasion (4)

Process of communication and attitude change, survey of general theories and typical research, analysis of contemporary persuasion, projects in experimental persuasion.

545 Communication in Organizations (4)

Prereq: perm. Traditional and modern concepts of channels of communication in complex organizations (government, industry, education, etc.). Influence of organizational theory on communicative patterns and tasks.

546 Communication and the Campaign (4)

Processes of communication as applied in a campaign, defined as any organizational goal-oriented effort designed to influence behaviors of identifiable population. Emphasizes theory application in non-classroom campaign situations (political, fund-raising, publicity, etc.).

548 Cross-Cultural Communication (4)

Analysis of processes and problems of communication as affected by national cultures; effects of differences in languages, values, meaning, perception and thought.

550 Introduction to Canonical Rhetoric (3)

Ancient and modern rhetorical concepts and theories; relation of rhetoric to poetics, ethics, law and modern communication theory.

552 Psychology of Speech (4)

Psychological principles of communication such as concept-reference: vocal, visual and verbal cues, and attention.

558 Responsibilities and Freedom of Speech in Communication (4)

Review of ethical background, social and political foundations and famous cases of freedom of speech.

560 Contemporary Public Address (4)

Analysis of selected speakers and settings since 1933 with emphasis on last decade; close examination of agitation, confrontation and control as rhetorical strategies; rhetoric of pulpit; black rhetoric, and rhetoric of women's liberation.

601 Measurement Methodology in Communication (3-5)

Prereq: perm. Measurement principles, instruments and techniques in communication; problems and procedures in testing, measuring and evaluating communicative attitudes and skills; development and availability of relevant standardized tests.

627 Speech and Higher Education I (4)
Current problems and challenges facing higher education; evolution of curricula in speech, and analysis of organizational structures of speech departments.

628 Speech and Higher Education II (4)
Structure, functions and administration of departments of speech communication.

629 Seminar in Speech Education (4)
Isolation and analysis of problems of teaching speech; individual research projects and reports.

644 Critical Perspectives in Communication (3-5)

Introduction to predicated assumptions and their consequences for understanding man-as-communicator through systematic inquiry.

693 Independent Study (1-15)

Prereq: perm. Readings on special problems under planned program approved by adviser. Projects must be approved prior to registration.

694 Research (1-12)

Prereq: perm. Individual research on special problems. Projects must be approved prior to registration.

695 Thesis (1-15)

701 Research Designs in Communication (3-5)
Prereq: 601 or perm. Nature and selection of communicative research problems; development of strategies, techniques and appropriate designs; critical evaluation and development of experimental and descriptive procedures.

740 Theories and Models of Communicative Process (3-5)

Survey and analysis of current theories and models of communicative process, including their respective points of integration and divergence. Emphasis on relation between structure of communicative process and its identifiable ingredients as revealed in models.

741 Language and Symbol Systems (3-5)

Communicative process and concept of symbolic structure; systems of signs and symbols; verbal and nonverbal language codes. Emphasis on man's symbolizing ability and relationships between symbolic and physical reality.

742 Theories and Processes of Persuasion (3-5)

Prereq: perm. Survey and analysis of representative theories and models of persuasive processes, and their relationships to communicative processes. Variables affecting implementation of persuasive principles and techniques.

743 Signs and Values (4)

Considerations of the relation between signification and significance in human communication.

744 Listening Behavior: Theory and Research (4)

Analysis and evaluation of listening process in terms of its theory, research and operational characteristics.

745 Communication Process in Small Groups (4)

Theory and research in group social system, group modification of individual judgment, leadership styles, group vs. individual goals and intragroup lines of communication in small problem-solving and learning groups.

746 Communicative Process in Organizations (3-5)

Prereq: perm. Interaction between organizational structure and communication within organizations. Emphasis on theoretical and methodological analysis.

748 Communication and Information Diffusion (3-5)

Analysis of major approaches to data and information diffusion systems on local, regional, national and international levels. Emphasis on acquisition, analysis and dissemination of data as information, including critical points of interface and interaction between system and its users.

749 Communication Process: Special Topics (3-5)

Prereq: perm. Critical and intensive examination of a single pertinent topic, e.g., cybernetics, esthetic communication, kinesics, proxemics, quantitative semantics, propaganda analysis, etc. May be repeated three times up to a maximum of 15 credit hrs.

750 Classical Rhetoric (4)

Principles of rhetoric based upon writings of Aristotle, Plato, Cicero and Quintillian. Individual research studies of classical theorists and practitioners.

754 Medieval and Renaissance Rhetoric (4)

Prereq: 750. (winter). Rhetorical theories during late Roman Empire, medieval Arab culture and European medieval and Renaissance cultures with emphasis on English Renaissance rhetoricians.

756 Modern Rhetoric (4)

Aims, tasks and significance of rhetoric in relation to human communication processes. Distinctions among speculative, critical, canonical and performative perspectives in rhetorical inquiry.

762 Early American Public Address to 1820 (4)
Speaking in Colonial, Revolutionary and Jeffersonian eras.

764 Sectional Conflict and Public Address—1820-1880 (4)

Speaking during antebellum, Civil War and Reconstruction eras.

766 American Public Address in Recent Times—1880-1933 (4)

Impact of populism, imperialism, progressivism, world war, normalcy and depression on public address.

772 British Public Address: Wars of Roses to Age of Pitt (4)

Methods of communication and rhetorical theories on masters of the period, including Strafford, Chatham, Burke, Fox and Pitt. Movements of the period and interaction of interpersonal communication with philosophic ideas, social forces and historical events.

774 British Public Address: Napoleonic Wars to Age of Churchill (4)

Methods of communication and rhetorical theories of masters of the period, including Erskine, Bright, Disraeli and Gladstone. Analysis of movements of the period, including nationalism, imperialism, social reform and political reform. Interaction of interpersonal communication with philosophic ideas, social forces and historical events.

776 European Public Address (4)

Speaking and rhetorical theories of important German, Russian, French and Italian speakers. Analysis of rhetoric of revolution, nationalism, imperialism, communism, fascism and republicanism.

779 Seminar in Rhetoric and Public Address (4)

Special topics in rhetorical theory, history of public address, rhetorical criticism and speech analysis.

780 Rhetorical Criticism (4)

Theories and methodologies of selected modern critics. Exploration of interdisciplinary dimensions in criticism of rhetorical interactions. Class and individual projects.

790 Interdisciplinary Seminar (3-12)

794 Research (3-12)

Prereq: perm. Individual research on special problems. Projects must be approved prior to registration.

895 Dissertation (1-24)

ITALIAN

(See Foreign Languages and Literatures)

JOURNALISM

Master's degree students may choose between two plans. Plan A, for students who plan to go into college teaching or other fields involving the direction, conduct and use of research, requires 45 hours including a thesis. Plan B, for students who intend to go into professional journalism and who lack extensive experience in the field, requires 45 hours including a graduate internship. Both plans require that the student take Jour 511, 512, 803, 806 and 811. Any of these required courses will be waived if the student presents evidence that he has had an equivalent course previously. Master's students will be required to take undergraduate reporting, editing and graphics if they have not previously taken such courses. A master's student must receive a grade of A or B in each of the required graduate-level courses. Also, no graduate credits with a grade of C or below will count toward the 45-hour minimum noted above.

To assist the School of Journalism in evaluating qualifications, each applicant for master's or doctoral level work is required to submit his scores on the aptitude tests of the Graduate Record Examination. Completion of the Miller Analogies Test also is recommended.

The School of Journalism, in cooperation with the School of Radio-Television, offers a PhD in mass communication. See details under the heading mass communication in this volume.

511 Newspaper and Communications Law (3)

Principles and case studies in communications law, constitutional guarantees, libel, privacy, contempt, privilege, copyright and government regulatory agencies.

512 Mass Media and Society (3)

Social responsibility of journalistic or other mass communicator. Professional codes, responsibility of media for social change, reaction to political and economic pressures.

521 Graphic Production Processes (5)

Prereq: perm. Advanced study of all processes for reproducing printed communication. Theory and lab.

522 Advertising Production (3)

Techniques and problems in methods of advertising production.

530 Magazine Editing and Production (3)

Prereq: 221. Theory of magazine editing, production and publishing with lectures on various types of magazines available today and analysis of audiences they serve. Formulas for publishing, editorial content and article selection; illustration and layout, and technical procedures including sales and fulfillment. Each student will prepare a dummy magazine of his own design.

531 Magazine Editing and Production Practice (3)

Prereq: 430 or 530. Practice course where students apply their knowledge to production of a quarterly magazine done regularly by the School of Journalism. Each student assigned a specific position on magazine.

532 Specialized Magazines (3)

Prereq: perm. As mass circulation magazine appears to wane, specialty magazine (professional, special interest, business, industrial, learned, demographic) strengthens. Course considers publishing problems in these areas, usually through case studies. Students will draw a prospectus for a specialty magazine and carry out audience studies.

541 Magazine Feature Writing (4)

Writing and marketing factual magazine feature articles of various types. Finding subjects, securing photographs, writing articles and surveying markets.

542 Advanced Magazine Feature Writing (3)

Writing and marketing magazine articles. Emphasis on specialized markets.

550 Advertising Copy Writing (3)

Effective persuasion in print.

552 TV Newsfilm Production and Editing (3)

Prereq: perm. Principles and practices of TV newsfilm production and editing.

555 Seminar in Broadcast News (3)

Discussion of problems—operational, social, economic, legal and ethical—faced by broadcasters reporting public affairs.

561 Specialized Journalism (3)

Seminar approach to individual study of journalistic areas of special interest to individual students.

564 Reporting of Public Affairs (3)

Problems of preparing in-depth, interpretative and analytical reports on public affairs for mass media, with practice in writing such reports. Focus mostly on contemporary controversial issues.

565 The Editorial Page (3)

Editorial page in opinion information. Problems of content selection and presentation. Extensive writing of analytical and persuasive editorials and interpretative articles in depth.

566 International Communications (5)

Development and operations of world mass communication channels and agencies. Comparative analysis of media, media practices and flow of news throughout world. Relation of communication practices to international affairs and understanding.

567 Foreign Correspondence (3)

Role of foreign correspondents in news-gathering. History, scope, techniques.

571 Public Relations Principles (5)

Public relations planning and techniques; selected communication studies and theories. Polling, defining objectives and analysis of public relations messages.

572 Advanced Public Relations (4)

Planning public relations programs and projects, including selection of audiences, messages and media and evaluation of effects. Project in area of student's interest.

581 Newspaper Management (3)

Problems in publishing affecting all departments.

582 Radio-Television Advertising and Management (4)

584 Supervising School and College Publications (4)

Conference course for advisers of high school and college newspapers, magazines and yearbooks. Problems relating to staff selection, content of publications, copy, layout, photography, printing, advertising and business phases. In summer sessions publications workshop analyzed on a case study basis.

601 News Media Development and Procedures (1-15)

Prereq: perm. Current procedures of mass media, including latest developments in news gathering, writing, editing and graphic presentation. Intended for students without undergraduate journalism major.

662 Graduate Internship (6)

Prereq: prior perm. Conference course for students who have completed internship with approved organization. Student will submit comprehensive report analyzing his internship experience.

691 Research in Journalism and Communications (1-15)

Prereq: perm.

695 Thesis (1-6)**790 Independent Study (1-4)**

Prereq: written proposal and perm prior to registration. Student can pursue personal scholarly interests under faculty supervision and guidance.

792 Seminar (3-5)

Prereq: grad rank. Selected topics of current significance. May be repeated with different topics.

803 Seminar in Mass Communications Theory (5)

Communication process, interpersonal and mediated and possible barriers to effectiveness. Review of literature on effects of mass communication on individuals and groups, contrasting channels and message structures. Media as social and economic institutions.

806 Research Methods (5)

Techniques for study of communications content, message sources, audiences and effects.

811 Seminar in History of Journalism (5)

Significant individuals, agencies and developments in history of American journalism. Research in historical bibliography in field of journalism; individual projects and readings; application of historiographic methods.

812 Government and Mass Communications (4)

Communications and political order. Theory and structure of democratic and totalitarian communications systems, relationships between government and mass communications in modern world.

814 Literature of Journalism (4)

Directed reading and discussion in the literature.

815 Seminar in Theory of Freedom of the Press (4)

Prereq: 511. Historical and philosophical development of concept of free expression and its relationship to development of Anglo-American system of information flow. Contrasting ideologies and their evolution. Implications of these theories in contemporary states.

816 Seminar in Mass Media Research (5)

Prereq: 806. Students present research ideas to seminar, discuss progress and problems, report findings and defend projects before group. Emphasis also on scaling and measurement, non-parametric statistics, research strategy and nature and function of theory in mass communication research.

850 Seminar in Advertising Copy (4)

Prereq: 550. Problems in developing and testing effective advertising and other copy programs.

866 Seminar in International Communication (5)

Prereq: 566, 803. Directed research and reading applied to problems of international communication and comparative foreign journalism. Each student studies press of selected nations or areas in which he has special interest.

871 Public Relations Problems and Programs (4)

Prereq: 571, 572. Overall planning and operation of public relations programs in government, industry and in educational and nonprofit organizations. Analysis and seminar discussion of problems and policies in such institutions. Case method used in conjunction with individual field studies conducted by class members.

895 Dissertation (1-15)**LATIN**

(See Foreign Languages and Literatures)

LATIN AMERICAN STUDIES

(See International Affairs)

LINGUISTICS

Graduate programs in linguistics are offered by the faculties of the Department of Linguistics and of other departments of the University whose professional concerns are in linguistics or related fields such as audiology and speech science, education, English, modern languages, psychology and sociology/anthropology. Nonthesis master of arts programs are offered in general linguistics and in applied linguistics. The applied linguistics programs lead to specialization in English linguistics or in teaching English as a foreign language. Individualized doctoral programs in applied linguistics are planned by the student in consultation with his adviser and approved by the Linguistics Department Graduate Studies Committee. Various areas of concentration are available including English language, experimental phonology, psycholinguistics and sociolinguistics of Southeast Asia or Africa.

Specific and detailed information about the programs available and the requirements thereof may be obtained by writing to the Chairman, Graduate Studies Committee, Department of Linguistics, Ohio University, Athens, Ohio 45701.

550 Introduction to General Linguistics (5)

Technical introduction to linguistics, devices of language description and methods of linguistic analysis.

560 Phonology (5)

Prereq: 550, or concurrent. (fall). Introductory course in analysis of sound systems of natural languages. 4 lec, 2 lab.

565 Theories of Phonology (5)

Prereq: 560. (winter). Latest developments in phonological theory, concentrating on theory of generative phonology in contrast with classical phonemic theory.

570 Syntax (4)

Prereq: 550. (fall). Introduction to theories and applications of grammatical analysis.

572 Theories of Grammar (5)

Prereq: 570. (winter). Study of competing contemporary models of grammatical description.

580 TEFL Theory and Methodology (4)

Prereq: 550, 560. (winter). Second language teaching theory and methodology, with emphasis on teaching English as a foreign language.

590 Language and Culture (5)

Prereq: 550 or concurrent. (fall). Developing personal insights into similarities and differences of language behavior in a variety of linguistic and cultural contexts.

591 Social Dialectology (3)

(spring). Introduction to interrelationships between language and social groups.

595 Introduction to Area Linguistics (3, 5)

Prereq: perm. (winter). Investigation into a specific group or sub-group of languages within Malayo-Polynesian or African families. Paper required for 5 hrs credit. (Alternate yrs: 1973-74 — African.)

600 Studies in Linguistics (1-4)

Prereq: perm. Directed individual investigation of a particular area of interest in linguistics.

609 Linguistics Colloquium (1, 2)

Papers by faculty, students and special guests. (Election for 2 hrs credit requires presentation of a paper.)

650 Historical Linguistics (4)

Prereq: 560, 570. (fall). Genealogical and typological classification, methods of historical analysis and change of language systems.

652 Computational Linguistics (3)

Prereq: 550. Application of computers to linguistic research.

661 Phonological Structures in English (4)

Prereq: 560. (winter). Analysis of sound system of English.

671 Syntactic Structures in English (4)

Prereq: 570 or perm. (spring). Analysis of English grammatical patterns.

675 Linguistics Semantics (4)

Prereq: 570. (spring). Semantic aspects of standard theory in generative grammar.

680 Materials in TEFL (4)

Prereq: 570, 580. (spring). Theory and practice of analysis, evaluation and creation of instructional materials for teaching English as a foreign language.

682 Proseminar in TEFL (5)

Prereq: 680. (summer). Research in special problems in teaching skills of spoken English.

683 Proseminar in TEFL (5)

Prereq: 680. (summer). Research in special problems in teaching skills of written English.

685 Proseminar in Applied Linguistics (5)

Prereq: perm. (spring). Group and individual research in applied linguistics.

686 Theories of Language Learning (3)

Prereq: 550. (fall). Theories of 1st and 2nd language acquisition and their applications to development and evaluation of language teaching methodology.

690 Languages in Contact (4)

Prereq: 560, 570. (spring). Psychological, pedagogical and social consequences of 2nd-language teaching-learning, with emphasis on theory and implications of linguistic transfer and interference.

696 Field Methods (5)

Prereq: 560, 570, or concurrent. (winter). Methods of eliciting, transcribing, organizing and analyzing linguistic data.

699 Proseminar in Linguistics (5)

Prereq: perm. (spring). Group and individual research in general linguistics.

750 Seminar in Comparative Linguistics (5)

Prereq: perm. Research in Indo-European language group with concentration on particular language families.

760 Seminar in Phonology (5)

Prereq: perm. Research on selected topics in phonological theory.

770 Seminar in Syntax (5)

Prereq: perm. Research on selected topics in syntactic theory.

775 Seminar in Linguistic Semantics (5)

Prereq: perm. Research on nature of semantic component of a generative grammar.

790 Dialectology (4)

Prereq: perm. Survey of historical and theoretical bases of dialect study.

792 History of Linguistics (4)

Prereq: perm. Survey of development of linguistic thought.

795 Seminar in Area Linguistics (5)

Prereq: perm. Research on particular aspects of languages of a given area.

800 Readings in Linguistics (2-5)

Prereq: perm. Directed readings for advanced students.

895D Dissertation (as recommended by dept)

English as a Foreign Language

Ohio Program of Intensive English (OPIE)

OPIE 565 is a service program for nonnative speakers whose proficiency in English is not adequate to permit them to enroll in an unrestricted program of academic courses. *Credit hours for the courses of this program are for visa validation and tuition assessment only and are not applicable to degree requirements.* Enrollment in OPIE 565 for 15 hours is for full-time intensive study of English as a foreign language beginning at elementary or intermediate level. Initial enrollment at elementary level presumes continuation at intermediate level for a total of 20 weeks of full-time intensive study. No credit courses may be taken concurrently with full-time intensive English. Enrollment in OPIE 565 for eight hours is for part-time semi-intensive supplemental study of English at a more advanced level for students concurrently enrolled in a part-time program of degree credit courses.

ELEMENTARY LEVEL FULL - TIME INTENSIVE ENGLISH: (fall, spring). Four classroom practice and recitation hours and one supervised language lab hour daily. Primary emphasis is on developing mastery of spoken English. Registration for 15 quarter hours.

INTERMEDIATE LEVEL FULL - TIME INTENSIVE ENGLISH: Prereq: intermediate proficiency level. (fall, winter, summer). Four classroom practice and recitation hours and one supervised language lab practice hour daily. Emphasis on both spoken and written English usage. May follow elementary level. May be initial enrollment with required proficiency. Registration for 15 quarter hours.

ADVANCED LEVEL SEMI-INTENSIVE SUPPLEMENTARY ENGLISH: Prereq: advanced proficiency level. (fall, winter, spring, summer). Two hours of classroom practice and recitation daily. Emphasis on both spoken and written English usage. Registration for eight quarter hours.

565 English as a Foreign Language (8-15)
Full-time intensive or part-time semi-intensive English for nonnative speakers.

MALAY

(See Foreign Languages and Literatures)

MANAGEMENT AND ORGANIZATIONAL BEHAVIOR

(Concentration area only)

To begin work in this area, the student must have completed basic courses satisfactory to the department and have permission from the instructor for a specific course.

500 Management (4)

Management and organization concepts and theory.

520 Administration of Personnel (4)

Prereq: perm. Compendium of practices in personnel management. Consideration of such areas as employee selection, training, performance evaluation and wages and salary administration.

521 Personnel Management Problems (4)

Prereq: 520 or perm. Personnel problems and their relation to various ethnological concepts. A case approach.

525 Labor Relations (4)

Prereq: perm. Nature of collective bargaining; labor-management conflict or consensus; grievance procedures; arbitration; contract administration.

526 Manpower Management (4)

Prereq: 420 and 425. Advanced course in manpower management, integrating personnel and labor relations functions at planning and policy-making level.

540 Organizational Behavior—Leadership and Motivation (4)

Prereq: 300 or perm. Conceptual framework of behavioral sciences to management and organizations. Motivation and leader behavior within organizational settings.

545 Organizational Behavior—Work Groups and Formal Organizations (4)

Prereq: 300. Organizational theory and behavior emphasizing formal organizational theory and work group behavior. Emphasis on interaction between organization, its environment and its members and influence of informal work groups on member behavior.

584 International Comparative Management (4)
Survey and analysis of similarities and differences in management systems, processes and styles, as well as evaluation of changes and their impact in selected groups of countries.

592 Management Thought (4)

Review of development of managerial theories from 5000 B.C. to present with consideration of their application to present organizational settings. (Not open to MBA management concentration students.)

594 Management Research (4)

Prereq: perm. Practical application of research methods in behavioral sciences to management problems, emphasizing research available and its use in decision making and in solving managerial problems. (Not open to MBA management concentration students.)

596 Organizational Behavior—Managing Change (4)

Prereq: 540, 640 or perm. Planning and implementing change in organizational settings. (Not open to MBA management concentration students.)

640 Organizational Behavior (4)

Application of psychology, sociology, anthropology, political science and other behavioral disciplines to working with and through individuals and groups.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

692 Management Thought (4)

Prereq: MBA management concentration students only. Review of development of managerial theories from 5000 B.C. to present with consideration of their application to present organizational settings.

693 Readings (1-15)

Readings on topics selected by student in consultation with faculty member.

694 Management Research (4)

Prereq: MBA management concentration students only. Practical application of research methods in behavioral sciences to management problems, emphasizing research available and its use in decision making and in solving managerial problems.

695 Thesis (1-15)

696 Organizational Behavior—Managing Change (4)

Prereq: 540, Mgt 640, or perm. MBA management concentration students only. Planning and implementing change in organizational settings.

697 Independent Research (1-15)

Research under direction of faculty member.

698 Internship (1-15)

MARKETING

(Concentration area only)

To begin work in this area, the student must have completed basic courses satisfactory to the department and have permission from the instructor for a specific course.

501 Marketing Principles (4)

Emphasis on practices and problems of marketing manager and environment in which he operates, supplemented with business cases.

503 Marketing Problems and Cases (4)

Problems facing manufacturers and middlemen in marketing programs. Students will develop integrated marketing programs based on cases taken from actual business situations. Emphasis on development of analytical skills.

504 Management of Distribution (4)

Problems encountered by manufacturer in establishing and maintaining effective distribution system, concentrating on channel design and strategies.

525 Industrial Marketing (4)

Investigation and analysis of problems involved in marketing of industrial products.

541 International Marketing (4)

Marketing problems, opportunities and organization of multinational firms to serve overseas markets. Government aids and impediments and a comparison of markets and marketing techniques in U.S. and foreign countries.

544 Consumer Behavior (4)

Individual, social and cultural influences that affect consumer behavior. Consideration of explanatory and predictive models.

546 Sales Forecasting (4)

Forecasting techniques and methodologies applied to estimation of future environments in which business and marketing managers will have to operate.

550 Management of Promotion (4)

Problem-solving course leading to development and management of firm's promotional mix with emphasis on use of mass media and on stimulation of reseller's cooperation.

558 Sales Management (4)

Principles and practices in planning, organizing and controlling sales force. Selection, training, compensating, supervising and stimulating salesmen. Analysis of sales potentials and costs.

561 Social Issues of Marketing (4)

Designed to increase awareness of future marketing managers of contemporary social issues and legal requirements of marketplace. Areas include social critics, past and present, and their criticisms, including excessive promotion, unsafe and unnecessary products, high prices and possible societal and governmental response to these criticisms.

562 Product Development (4)

Examination of new product development activities to identify significant factors to be studied and decisions required in researching, manufacturing and marketing new products.

578 Marketing Theory (4)

Investigation of theoretical framework of marketing operations and marketing environment.

579 Marketing Research (4)

Techniques involved in collection, tabulation and analysis of marketing information.

580 Mathematical Models of Marketing Analysis (4)

Quantitative techniques that can be used in analysis of marketing problems and application of these methods to problem situations.

645 Seminar in Consumer Behavior (4)

Behavioral science research as it applies to marketing process.

655 Managerial Marketing (4)

Extensive case analysis of problems encountered by manufacturer and middleman in marketing consumer goods and industrial products.

663 Marketing Strategy (4)

Analysis of preparation and organization of overall marketing plans, and elements of marketing mix. Also developed are merchandising analyses, objectives and strategies which take into consideration the everchanging consumer, trade and legal environment as well as firm's costs.

666 Seminar in Marketing Theory (4)

Investigation of theoretical framework of marketing activities and operations.

690 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with faculty member.

695 Thesis (1-15)**697 Independent Research (1-15)**

Research under direction of faculty member.

698 Internship (1-15)

MASS COMMUNICATION

The School of Journalism and the School of Radio-Television jointly offer a doctoral program in mass communication. Students may work toward a PhD in mass communication with emphasis on radio-television, journalism or mass communication research.

The minimum requirements for the doctorate are: a total of 135 quarter hours of graduate work, including previous work on the graduate level which has been accepted for transfer, and further including up to 30 quarter hours of credit for the dissertation; a major of at least 54 quarter hours (other than dissertation) in mass communication; at least 18 quarter hours in a related area outside the College of Communication; distribution of the remaining hours, up to a total of at least 135, among courses within or outside the college which the student, with the approval of his guidance committee, believes will contribute to his professional competence; and two scholarly disciplines or tools (statistics, historiography, etc.) or intensive proficiency in one scholarly discipline.

The PhD program in mass communication at Ohio University is highly student oriented. Rather than conforming to a common set of requirements, each student devises his own program of study (with the advice and approval of his guidance committee) according to needs determined by his own personal and career goals.

Because there are minor differences in procedures employed by the schools cooperating in the mass communication program (for example, while the School of Journalism requires that all applicants file GRE scores and recommends that MAT scores also be supplied, the School of Radio-Television requires only that applicants file either the GRE or MAT scores), those who wish to make application are advised to contact the graduate coordinator of the school through which entry is sought.

COURSES OFFERED THROUGH THE SCHOOL OF JOURNALISM

790 Independent Study (1-4, max 15)

Prereq: written proposal and perm prior to registration. Student can pursue personal scholarly interests under faculty supervision and guidance.

792 Seminar (3-5)

Prereq: grad rank. Selected topics of current significance. May be repeated with different topics.

803 Seminar in Mass Communications Theory (5)

Communication process, interpersonal and mediated and possible barriers to effectiveness. Review of literature on effects of mass communication on individuals and groups, contrasting channels and message structures. Media as social and economic institutions.

806 Research Methods (5)

Techniques for study of communications content, message sources, audiences and effects.

811 Seminar in History of Journalism (5)

Significant individuals, agencies and developments in history of American journalism. Research in historical bibliography in field of journalism; individual projects and readings; application of historiographic methods.

812 Government and Mass Communications (4)

Communications and political order. Theory and structure of democratic and totalitarian communications systems, relationships between government and mass communications in modern world.

814 Literature in Journalism (4)

Directed reading and discussion in the literature.

815 Seminar in Theory of Freedom of the Press (4)

Prereq: 511. Historical and philosophical development of concept of free expression and its relationship to development of Anglo-American system of information flow. Contrasting ideologies and their evolution. Implications of these theories in contemporary states.

816 Seminar in Mass Media Research (5)

Prereq: 806. Students present research ideas to seminar, discuss progress and problems, report findings and defend projects before group. Emphasis also on scaling and measurement, nonparametric statistics, research strategy and nature and function of theory in mass communication research.

850 Seminar in Advertising Copy (4)

Prereq: 550. Problems in developing and testing effective advertising and other copy programs.

866 Seminar in International Communications (5)

Prereq: 566, 803 or perm. Directed research and reading applied to problems of international communication and comparative foreign journalism. Each student studies press of selected nations or areas in which he has special interest.

871 Public Relations Problems and Programs (4)

Prereq: 571, 572. Overall planning and operation of public relations programs in government, industry and in educational and nonprofit organizations. Analysis and seminar discussion of problems and policies in such institutions. Case method used in conjunction with individual field studies conducted by class members.

895 Dissertation (1-15)**COURSES OFFERED THROUGH THE SCHOOL OF RADIO-TELEVISION****703 Statistical Analysis in Mass Communication Research (4)**

Prereq: 602 or perm. Statistical techniques as applied to problems in mass communication.

705 Research Internship (1-9)

Prereq: Acceptance by competition only. Opportunity for students to implement and complete major research study under supervision.

740 Radio and Television in Education (4)

Summary, analysis, application and evaluation of TV and radio research in teaching-learning process. 4 lec.

741 Instructional Methods in Educational Radio-Television (4)

Practical applications of television in public school classroom. Utilization of television programs as adjunct to instruction. Preparation of instructional units for telecasting. 2 lec, 4 lab.

750 Broadcast Economics (4)

Economic structure of broadcasting industry, economics of its units and its economic relationships with other industries. Case studies in budget planning and cost control. 5 lec.

751 Broadcast Management (4)

Functions, structure and organization of broadcasting stations; case studies relating to problems of personnel, sales, programming and management. 5 lec.

753 Broadcasting Law and Regulations (4)

Socio-political control of broadcasting; effect of laws, regulations and public pressures upon programming policies. 5 lec.

755 Broadcasting Programming (4)

Programming concepts, resources, costs, selection and scheduling. 5 lec.

757 Broadcast Sales and Sales Management (4)

Problems and practices of television and radio

sales and sales management, including case studies

in sales development, pricing, promotion and other

problem areas. 5 lec.

767 Comparative Systems of Broadcasting (4)

Broadcasting systems of other countries in terms of relevant political, social, economic and cultural influences. 5 lec.

769 International Broadcasting (4)

Development, effect and control of international broadcasting as instrument of foreign policy.

771 Social Impact of Mass Communication (4)

Group and individual investigation into research methodology and literature on effects of mass media upon society, with particular reference to broadcasting. 4 lec.

779 History of Broadcasting (4)

Origin of systems of radio and television communication and their development to the present day. 5 lec.

786 Colloquium in Broadcasting (1-5)

Study and analysis of current issues and problems in radio-television.

804 Seminar in Mass Communication Research (4)

Prereq: 703. Intensive study of research methodologies in radio - television scholarship; individual projects.

842 Seminar in Educational Radio-Television (4)

Intensive examination and evaluation of radio-television utilization in educational process.

843 Seminar in Pedagogy (4)

Problems, methods and techniques of teaching of radio-television at college level.

865 Seminar in International Broadcasting (4)

Problems in socio-political control of broadcasting related to developing systems of other nations and international implications of technological development of broadcast communications.

884 Seminar in Criticism (4)

Intensive critical analysis of broadcast programs and program schedules from socio-cultural, literary, political and broadcast industry points of view.

894 Independent Study (1-12)

Prereq: perm. Individual research on special problems. Projects must be approved prior to registration.

895 Dissertation (1-24)**MATHEMATICS**

The Department of Mathematics offers the master of science and the doctor of philosophy degrees. Each student plans his own program with the aid of an adviser and has it approved by the departmental graduate committee.

The master's degree may be taken without a thesis; no examination is required. The minimum coursework required for this degree is 45 quarter hours. However, if the student does most or all of his work on the 500 level, the graduate committee may require him to take more than 45 but not over 60 quarter hours. The coursework should include sequences in at least two areas of mathematics, e.g. algebra, analysis, topology, etc.

The PhD degree requires satisfactory performance on a comprehensive examination and the writing of an acceptable dissertation. The comprehensive examination will be based on three courses at the 600 level or above, selected by the student and approved by the graduate committee. However, the prospective dissertation adviser may require additional evidence to determine whether or not the student is prepared to undertake a dissertation project under his direction. For this degree the student should, as early as possible, acquire the ability to read the (current) mathematical literature in one or more of the following languages: French, German or Russian.

All graduate level computer science courses, except for CS 551, 552, 553 and 554, may be used to satisfy requirements for a graduate degree in mathematics.

500 History of Mathematics (5)

Prereq: grad rank. (spring). Main lines of mathematical development in terms of contributions made by great mathematicians: Euclid, Archimedes, Descartes, Newton, Gauss, etc.

506 Foundations of Mathematics (5)

Prereq: grad rank. (fall, winter). Introductory topics in set theory and axiomatic development of real number system.

507 Classical Number Theory (5)

Prereq: grad rank. (spring). Divisibility properties of integers, arithmetic properties of congruence classes modulo n , number-theoretic functions, solution of linear and nonlinear systems of diophantine equations, law of quadratic reciprocity and selected classical results on representation of integers as sum of squares. Additional topics covered as time permits.

510 Matrix Theory (5)

Prereq: grad rank. (fall, spring, summer). Primarily intended for science and engineering majors. Topics include matrix algebra and matrix calculus, matrix solutions of systems of linear equations, eigenvector and eigenvalue problems, quadratic forms and inner product spaces.

511 Linear Algebra (5)

Prereq: grad rank. (fall). Vector spaces and linear transformations; matrices and determinants; characteristic roots and similarity; duals spaces; classification of quadratic and Hermitian forms.

513A Introduction to Modern Algebra (5)

Prereq: 511 or equivalent mathematical maturity. (winter). Groups, permutation groups, subgroups, normal subgroups, quotient groups. Conjugate classes and class equation formula and its applications to p -groups. Fundamental theorem on homomorphisms.

513B Introduction to Modern Algebra (5)

Prereq: 513A. (spring). Fundamental theorem on finite abelian groups and its consequences. Cauchy theorem and first Sylow theorem. Polynomial rings. UFD and Euclidean domains. Maximal ideals. Algebraic extensions and splitting fields. Fundamental theorem of Galois theory.

529 Topics in Mathematics of Elementary and Secondary Schools (1-5)

Prereq: perm and grad rank. (offered on demand). Selected topics related to teaching of mathematics in grades K-12. (May be repeated for credit.)

539 Topics in Geometry (1-5)

Prereq: perm of graduate chairman and instructor. When demand sufficient, course in some phase of geometry will be offered under this number. (May be repeated for credit.)

540 Vector Analysis (5)

Prereq: grad rank. (spring). Vector algebra and its applications. Vector calculus and space curves. Scalar and vector fields, gradient, divergence, curl and the Laplacian. Line and surface integrals, divergence theorem, Stoke's theorem and Green's theorem.

541 Fourier Analysis and Partial Differential Equations (5)

Prereq: grad rank. (winter). Representation of functions as sums of infinite series of trigonometric functions, Bessel functions, Legendre polynomials or other sets of orthogonal functions. Use of such representations for solution of partial differential equations dealing with vibrations, heat flow and other physical problems.

542 Theory of Linear and Nonlinear Programming (5)

Prereq: 510 or equiv, computer programming experience desirable. (spring). Minimization of functions subject to equality and inequality constraints, Kuhn-Tucker theorem, algorithms for function minimization, such as steepest descent and conjugate gradient, and penalty function method. (Not a course in computer programming.)

544 Introduction to Numerical Analysis (5)

Prereq: CS 553 and an undergraduate course in differential equations. (winter, summer). Numerical methods in: Polynomial interpolation and approximations, integration and differentiation, finding solutions to differential equations, matrix inversion, determination of eigenvalues and finding solutions of systems of equations.

550A Theory of Statistics (5)

Prereq: grad rank. (fall). Probability distributions of one and several variables, sampling theory, estimation of parameters, confidence intervals, analysis of variance, correlation and testing of statistical hypotheses.

550B Theory of Statistics (5)

Prereq: 550A. (winter). Continuation of 550A. See 550A for description.

560A Advanced Calculus (5)

Prereq: grad rank and an undergraduate course in introductory analysis. (fall). Critical treatment of functions of a single variable. Emphasis placed on topics not treated in undergraduate introductory analysis course, such as compactness, nested intervals, deeper properties of continuous functions, Riemann-Stieltjes integration and uniform convergence.

560B Advanced Calculus (5)

Prereq: 560A and 511. (winter). Primarily devoted to study of differential calculus in n -space. Topics include a review of inner product spaces and linear transformations, elementary topology of plane, limits and continuity of functions of several variables, directional derivative, differential, chain rule and implicit function theorem.

560C Advanced Calculus (5)

Prereq: 560B. (spring). Primarily devoted to study of integral calculus in n -space. Riemann-Darboux integral, Jordan content, iterated integrals, transformation of integrals, differential forms and their integrals.

570 Applied Complex Variables (5)

Prereq: grad rank. (fall). Analytic and harmonic functions, Cauchy integral and residue theorems, contour integration, Taylor and Laurent expansions, conformality and linear transformations with applications.

580A Elementary Point Set Topology (5)

Prereq: grad rank. (winter). Topology of Euclidean spaces and general metric spaces.

580B Elementary Point Set Topology (5)

Prereq: 580A. (spring). Introduction to general topological spaces.

599 Selected Topics in Mathematics (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). (May be repeated for credit.)

600A Set Theory (5)

Prereq: perm. (fall). Introduction to axiomatic set theory; ordinals and cardinals; equivalents of the axiom of choice.

600B Set Theory (5)

Prereq: 600A. (winter). Continuation of 600A. See 600A for description.

613A Abstract Algebra (5)

Prereq: 513B. (fall). Groups, rings and fields, Jordan-Hölder theorem, structure theorem for finitely generated abelian groups, integral domains, principal ideal rings, modules, linear algebras, field extensions and Galois theory.

613B Abstract Algebra (5)

Prereq: 613A. (winter). Continuation of 613A. See 613A for description.

613C Abstract Algebra (5)

Prereq: 613B. (spring). Continuation of 613A-B. See 613A for description.

630A Tensor Analysis on Manifolds (5)

Prereq: 511 and 560C.

630B Tensor Analysis on Manifolds (5)

Prereq: 630A.

630C Tensor Analysis on Manifolds (5)

Prereq: 630B.

640A Numerical Analysis (5)

Prereq: 511 and 560C.

640B Numerical Analysis (5)

Prereq: 640A.

640C Numerical Analysis (5)

Prereq: 640B.

641A Methods of Applied Mathematics (5)

Prereq: 560C and 511.

641B Methods of Applied Mathematics (5)

Prereq: 641A.

641C Methods of Applied Mathematics (5)

Prereq: 641B.

647A Special Functions (5)

Prereq: 570 and 560A or 670A.

647B Special Functions (5)

Prereq: 647A.

650A Introduction to Approximation Theory (5)

Prereq: 560C and 511.

650B Introduction to Approximation Theory (5)

Prereq: 650A.

650C Introduction to Approximation Theory (5)

Prereq: 650B.

660A Real Analysis (5)

Prereq: 560C. (fall). Abstract measure and integration; Lebesgue measure on real line; L^p -spaces; Fubini and Radon-Nikodym theorems; differentiation theory.

660B Real Analysis (5)

Prereq: 660A. (winter). Continuation of 660A. See 660A for description.

660C Real Analysis (5)

Prereq: 660B. (spring). Continuation of 660A-B. See 660A for description.

670A Complex Analysis (5)

Prereq: 560A and perm. (fall). Analytic functions, multivalued analytic functions, power series, complex integration, Cauchy integral theorem, its extensions and consequences. Residue theorem, Taylor and Laurent expansions, max-modulus principle and its generalizations, elementary conformal mapping, conformal representations, Riemann mapping theorems, analytic continuations, Riemann surfaces, Weierstrass and Mittag-Leffler's factorization theorems, simply periodic functions, simple properties of elliptic functions, Dirichlet problem.

670B Complex Analysis (5)

Prereq: 670A. (winter). Continuation of 670A. See 670A for description.

670C Complex Analysis (5)

Prereq: 670B. (spring). Continuation of 670A-B. See 670A for description.

671A Potential Theory (5)

Prereq: 560C and 570, or 670A.

671B Potential Theory (5)

Prereq: 671A.

680A Point Set Topology (5)

Prereq: 560C. (fall). General topological spaces, product and quotient spaces, convergence, separation, countability properties, compactness and paracompactness, connectivity, metric spaces, completion, metrization, completely regular spaces, uniform spaces.

680B Point Set Topology (5)

Prereq: 680A. (winter). Continuation of 680A. See 680A for description.

680C Point Set Topology (5)

Prereq: 680B. (spring). Continuation of 680A-B. See 680A for description.

690 Independent Study (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Independent study of topics under guidance of faculty member. (May be repeated for credit.)

695 (MS) Thesis (arranged)

Prereq: perm of graduate chairman. (fall, winter, spring, summer.) (May be repeated for credit.)

699 Topics in Mathematics (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer.) (May be repeated for credit.)

710A Group Theory (5)

Prereq: 613C. (offered even-numbered years). Abelian groups, permutation groups, Sylow theorems, solvable groups, group extensions, free groups and free products, group representation and characters.

710B Group Theory (5)

Prereq: 710A. (offered even-numbered years). Continuation of 710A. See 710A for description.

711A Theory of Rings and Modules (5)

Prereq: 613C. (offered odd-numbered years). Rings with minimum condition, Wedderburn theorems, Jacobson radical, Jacobson density theorem, commutativity conditions, algebras, Goldie theorems, modules and chain conditions.

711B Theory of Rings and Modules (5)

Prereq: 711A. (offered odd-numbered years). Continuation of 711A. See 711A for description.

730A Differential Geometry—Classical (5)

Prereq: 511 and 660C.

730B Differential Geometry—Classical (5)
Prereq: 730A.

731A Differential Geometry—Modern (5)
Prereq: 511, 660C and 680C.

731B Differential Geometry—Modern (5)
Prereq: 731A.

740A Ordinary Differential Equations (5)
Prereq: 560C and 511.

740B Ordinary Differential Equations (5)
Prereq: 740A.

740C Ordinary Differential Equations (5)
Prereq: 740B.

741A Partial Differential Equations (5)
Prereq: 560C, 511 and 570.

741B Partial Differential Equations (5)
Prereq: 741A.

741C Partial Differential Equations (5)
Prereq: 741B.

760A Measure and Integration (5)
Prereq: 511, 660C and 680C.

760B Measure and Integration (5)
Prereq: 760A.

761A Functional Analysis (5)
Prereq: 560C. (offered odd-numbered years). Normed linear spaces, Hilbert spaces, Hahn-Banach extension theorems, Banach-Steinhaus theorem, closed graph theorem, applications to differential and integral equations.

761B Functional Analysis (5)
Prereq: 761A. (offered odd-numbered years). Topics selected from spectral theory, Banach algebras, integration in Banach spaces, linear topological vector spaces; and other topics.

761C Functional Analysis (5)
Prereq: 761B. (offered odd-numbered years). Continuation of 761B. See 761B for description.

762A Transformation Theory (5)
Prereq: 660C and 680C.

762B Transformation Theory (5)
Prereq: 762A.

780A General Topology (5)
Prereq: 680C. (fall). Continuation of main line of development of Math 680A-B-C, but at a deeper and more advanced level. Offered especially for those students who intend to specialize in general topology.

780B General Topology (5)
Prereq: 780A. (winter). Continuation of 780A. See 780A for description.

780C General Topology (5)
Prereq: 780B. (spring). Continuation of 780A-B. See 780A for description.

781A Algebraic Topology (5)
Prereq: 613C, 660C and 680C.

781B Algebraic Topology (5)
Prereq: 781A.

809 Topics in the Foundation and History of Mathematics and in Number Theory (1-15)
Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not offered in normal course offerings. (May be repeated for credit.)

819 Topics in Algebra (1-15)
Prereq: perm of graduate chairman. (fall, winter, spring, summer). Detailed study of advanced topics not covered in other algebra courses. (May be repeated for credit.)

829 Topics in the Teaching of Mathematics (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not covered in regular course offerings. (May be repeated for credit.)

839 Topics in Geometry (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not covered in regular offerings. (May be repeated for credit.)

849 Topics in Applied Mathematics (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not covered in regular offerings. (May be repeated for credit.)

859 Topics in Probability, Statistics and Stochastic Processes (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not covered in regular offerings. (May be repeated for credit.)

869 Topics in Real Analysis (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Selected topics not covered in regular offerings. (May be repeated for credit.)

879 Topics in Complex Analysis (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Special topics not ordinarily covered in other courses. (May be repeated for credit.)

889 Topics in Topology (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Special topics not covered in other courses. (May be repeated for credit.)

890 Independent Study (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). Independent study under guidance of faculty member. (May be repeated for credit.)

891 Seminar (1-15)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). (May be repeated for credit.)

895 Dissertation (arranged)

Prereq: perm of graduate chairman. (fall, winter, spring, summer). (May be repeated for credit.)

MECHANICAL ENGINEERING (See Engineering, Mechanical)

MODERN LANGUAGES

(See Foreign Languages and Literatures)

MUSIC

Applied Music (Performance)

History and Literature

Theory and Composition

Music Education

To begin a graduate program in music a student is required to have completed, with at least a 2.5 accumulative average, an undergraduate curriculum in music from an accredited institution offering an undergraduate degree equivalent to the requirements of the National Association of Schools of Music.

All applicants for admission should submit their scores on the Graduate Record Examination, including the Advanced Test in Music. If a student is admitted without having taken these tests, they must be taken during his first quarter at Ohio University.

After admission has been granted, placement examinations in music theory and music history and literature are given to all entering graduate students during registration week of the first quarter of enrollment. Music education majors are required to take an additional examination in music education. Performance majors must audition and demonstrate graduate level performance proficiency; all other majors must demonstrate proficiency on a principal instrument. The results of these placement tests are used in planning the student's course of study. Deficiencies in undergraduate preparation should be removed during the first year of study.

All graduate programs are based upon the completion of a minimum of 45 quarter hours of work beyond the bachelor's degree. A thesis or its equivalent is required in all programs except in music education where a 48 quarter hour (minimum) nonthesis program, including specified research courses, is available. Generally the work will be taken in the field of music; however, non-music courses may be taken with the approval of the student's major adviser. Majors in applied music present a public recital, while majors in composition present a composition in a large form in lieu of a thesis. In certain cases the student in music education may apply to the Graduate Committee of the School of Music for permission to present a graduate recital in lieu of a thesis. An oral examination is required of all candidates. Students in music education not holding standard certification are required to earn Ohio certification in addition to the normal program.

Applied Music

540 Voice (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

541 Piano (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

542 Stringed Instruments (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

543 Woodwind Instruments (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

544 Brass Instruments (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

545 Percussion Instruments (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

546 Organ (1-4)

Prereq: perm. Not open to applied majors. Maximum credit allowed toward graduation: 6 hrs.

547 Ensemble (1, max 6)

Prereq: perm.

548 Accompanying (1, max 3)

Basic problems in accompanying singers and instrumentalists — rehearsal techniques, ensemble, pedaling, balance, etc. May be repeated.

550 Voice (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

551 Piano (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

552 Stringed Instruments (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

553 Woodwind Instruments (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

554 Brass Instruments (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

555 Percussion Instruments (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

556 Organ (4-6)

Prereq: perm. For applied majors only. Maximum credit allowed toward graduation: 22 hrs.

559A Advanced Conducting (3)

Prereq: perm. (spring). Advanced reading and conducting of large works for orchestra.

559B Advanced Conducting (3)

Prereq: perm. (spring). Advanced reading and conducting of large works for choir. Standard and new works for public school and college groups.

590 Piano Pedagogy (2)

Presentation of various teaching methods, techniques and repertoire used with the beginning student.

591 Piano Pedagogy (2)

Presentation of various teaching methods, techniques and repertoire used with the intermediate student.

699A Recital (0)

Prereq: perm. Full-length public recital, a recording of which will be filed in library.

History and Literature

521 History of Musical Styles (3)

(summer, 1974). History of musical styles from early Christian era to present.

522 History of Musical Styles (3)

Prereq: 521. (summer, 1975). Continuation of 521. See 521 for description.

523 History of Musical Styles (3)

Prereq: 522 (summer, 1973). Continuation of 521-522. See 521 for description.

524 Literature of — (3)

(a) vocal music (fall, 1973); (b) piano music (winter, 1974); (c) chamber music (spring, 1974); (d) orchestral music (fall, 1974); (e) organ music (winter, 1975); (f) opera (spring, 1975).

531 Ancient and Medieval Music (4)

Prereq: perm. (summer, 1973). Music as artistic and theoretical expression of antiquity and Middle Ages, history of musical styles to 1410.

532 Music of the Renaissance (4)

Prereq: perm. (fall, 1973). Musical styles ca. 1410 to ca. 1600.

533 Music of the Baroque Period (4)

Prereq: perm. (winter, 1974). Musical styles ca. 1600 to ca. 1730.

534 Music of the Classic Period (4)
Prereq: perm. (spring, 1974). Music styles of Rococo and Classicism through the 1st qtr of the 19th century.

535 Music of the 19th Century (4)
Prereq: perm. (summer, 1974). Music as artistic expression of 19th century Romanticism.

536 Contemporary Music (4)
Prereq: perm. (fall, 1974). Music as artistic expression of our time. Various styles since ca. 1900.

537 Analysis of Music Notation (3)
Prereq: perm. Gregorian through Medieval modal notation.

538 Analysis of Music Notation (3)
Prereq: 537. Franconian and Ars Nova notation systems.

539 Analysis of Music Notation (3)
Prereq: 538. Continuation of 538.

600 Independent Study (1-15)
Prereq: perm.

620 Seminar in Theory and Music History and Literature (3, max 9)
Individual studies of problems in music history and theory. Methods of music research and use of music bibliography.

695 Thesis (as recommended by dept) (1-6)

Theory and Composition

501 Theory Survey (3)
Survey of harmonic usage in common practice period.

502 Theory Survey (3)
Graduate review. Analysis of musical form.

503 Theory Survey (3)
Graduate review. Sightsinging and dictation.

505 Teaching of Theory (3)
Prereq: perm. Designed to meet needs of student who plans to teach theory at college level. Current materials and pedagogical approaches surveyed.

506 Teaching of Theory (3)
Prereq: 505. Continuation of 505. See 505 for description.

507 Counterpoint I (3)
Prereq: perm. (fall). 16th century counterpoint: practices and styles; Lassus and Palestrina.

508 Counterpoint II (3)
Prereq: perm. (winter). 18th century counterpoint: invention, canon, fugue.

509 Counterpoint III (3)
Prereq: perm. (spring). Modern counterpoint: Hindemith, Bartok, 12-tone.

510 Composition (3)
Prereq: perm. Extensive writing in larger vocal and instrumental forms.

511 Composition (3)
Prereq: 510. Continuation of 510. See 510 for description.

512 Composition (3)
Prereq: 511. Continuation of 510-511. See 510 for description.

513 Advanced Orchestration (2)
Prereq: perm. Problems in scoring original works for modern symphony orchestra. Satisfactory scores are performed by Ohio University Symphony Orchestra.

514 Advanced Orchestration (2)
Prereq: 513. Continuation of 513. See 513 for description.

515 Advanced Orchestration (2)
Prereq: 514. Continuation of 513-514. See 513 for description.

516 Styles I (3)
Prereq: perm. (fall). Analysis of 15th century music.

517 Styles II (3)
Prereq: perm. (winter). Analysis of post-Romantic music.

518 Styles III (3)
Prereq: perm. (spring). Analysis of 20th century music.

600 Independent Study (1-15)
Prereq: perm.

616 Evolution of Harmonic Theory (3)
Prereq: perm. Writings of most important music theorists from the 10th century to present.

617 Evolution of Harmonic Theory (3)
Prereq: 616. Continuation of 616. See 616 for description.

618 Evolution of Harmonic Theory (3)
Prereq: 617. Continuation of 616-617. See 616 for description.

620 Seminar in Theory and Music History and Literature (3, max 9)
Individual studies of problems in music history and theory. Methods of music research and use of music bibliography.

695 Thesis (as recommended by dept) (1-6)

Music Education

561 20th Century Music for General Music Classes (2)
Analysis of form and style; literature; techniques of teaching 20th century music for elementary and secondary school students.

563 Instrumental Techniques and Materials (4)
(spring). Advanced techniques for high school and college instrumental groups. Literature and materials.

564 Marching Band Techniques (3)
Prereq: perm. (winter). Techniques for preparation of high school and college marching band performance.

565 Choral Techniques and Materials (4)
(winter). Advanced techniques for high school and college vocal groups. Literature and materials.

566 Problems in Elementary Music (3)
(spring). Advanced course in techniques and materials.

567 Scoring for Bands (3)
Prereq: perm. (spring). Writing techniques for marching and concert band.

568 General Music in Junior High (4)
Prereq: perm. (winter). Materials and methods; listening program; changing voice.

571 Supervision of School Music (3)
(fall). Function of supervisor, consultant or coordinator of music in public schools. Curriculum developments, teaching aids, in-service training and community-school relationships.

576 Workshops and Institutes (1-4)
Prereq: perm. (a) music clinic-workshop, (b) elementary music workshop, (c) chamber music institute. *May be repeated for credit, but credit may be applied to degree electives only once for each workshop.*

581 Psychological Foundations of Music I (3)
Prereq: perm. (winter). Nature and extent of psychological investigations bearing upon composition, performance and education in field of music.

582 Psychological Foundations of Music II (3)
Prereq: 581. Continuation of 581. See 581 for description.

600 Independent Study (1-15)
Prereq: perm.

670 Contemporary Trends in Music Education (4)
(fall). Problems, objectives and current practices in music education and related fields.

671 Advanced Topics in Music Education (4)
Prereq: perm. (winter). Examination of current methods of measuring aptitude and achievement in music and brief survey of elementary statistics used in research in music education.

672 Advanced Topics in Music Education (4)
Prereq: perm. (spring). Philosophical foundations of esthetics as applied in music education curricula of contemporary societies.

674 Experimental Studies (3)
(winter). Experimental methods as applied to problems of music and music education, including research in music education and related areas. Individual projects required.

675 Seminar in Music Education (3)
Introduction to graduate study and research methods in music education. Individual studies and discussion of problems in music education.

677 Organization and Administration of School Music (3)
Prereq: perm. (spring). For directors of school music programs, or those who plan to enter music administration. Finance, organization and administration, personnel, materials and equipment. Individual projects and reports required.

695 Thesis (as recommended by dept) (1-6)

PHILOSOPHY

Only students who have received a 3.0 (B) average in their undergraduate courses in philosophy and a 2.5 average in other undergraduate courses will be admitted as majors in philosophy. The prerequisite for beginning a graduate major is 18 quarter hours, including courses in ethics, logic, the history of ancient philosophy and the history of modern philosophy.

514 Analytic Philosophy (5)
Selected topics in contemporary Anglo-American philosophy from Moore to Wisdom.

515 Contemporary Philosophical Problems (5)
Issues from current journal literature.

516 Philosophy of Science (5)
Prereq: perm. Analysis of selected problems in logic and methodology of sciences.

518 Plato (5)

519 Aristotle (5)

520 Symbolic Logic II (5)
Prereq: perm. Informal and formal deductive systems, logic of relations, class logic.

521 Proof Theory (5)
Prereq: 420 or 3 hrs mathematics beyond 2nd yr calculus. (offered on demand). Syntax and semantics of formal theories.

522 Computability (5)
(offered on demand). Algorithms, recursive functions, Turing machines, decidability.

523 Modal and Many Valued Logics (5)
Prereq: 320. (offered on demand). N-valued logics, modal logic.

524 Foundation Theory (5)
Prereq: 420 or 3 hrs mathematics beyond 2nd yr calculus. (offered on demand). Alternative bases for developing formal theories.

528 Continental Rationalism (5)
Descartes, Spinoza, Leibniz.

529 British Empiricism (5)
Locke, Berkeley, Hume.

530 Contemporary Ethical Theory (5)
Current literature in selected topics of moral philosophy.

531 History of Esthetic Theory (5)
Readings from Plato to Dewey and relation of these theories to selected arts and recent criticism.

532 Problems in Esthetics (5)
For students interested in the arts but not necessarily in issues primarily of interest to philosophers. Writings drawn from modern sources on theory of art, esthetic criticism, creativity, truth in art and esthetic value.

538 Kant (5)
Kant's *Critique of Pure Reason* with attention given to his ethical theory.

539 19th Century European Philosophy (5)
Subjects selected from French, German and British philosophers of 19th century.

540 Contemporary Social Philosophy (5)

542 Philosophy of Law (5)
Philosophical analysis of nature and justification of legal systems including examination of concepts of just laws and just legal systems.

544 Philosophy of Marxism (5)
Philosophical inquiry into classical and contemporary Marxist thought stressing Marx, Engels, Lenin, Stalin, Mao and several contemporary Marxists such as the "Praxis group" of Yugoslavia.

548 Pragmatism (5)
Peirce, James, Dewey.

550 Theory of Knowledge (5)
Critical examination of various views of what knowledge is and how it is attained.

551 Metaphysics (5)
Basic alternative conceptions of the world, and such topics as substance, causality, self, freedom, space and time.

552 Myth and Symbolism (5)
Characteristic expressions of thought in primitive societies and theories concerning primitive mentality.

558 Contemporary German Philosophy (5)
(alternate years). Analysis of themes in Husserl, Heidegger, Scheler, Hartman, Dilthey, Cassirer, Geber and Ingarden, stressing phenomenological roots as well as new philosophic directions.

559 Contemporary French Philosophy (5)
(alternate years). Trends in contemporary French philosophy, stressing Sartre, Camus, Marcel, Merleau-Ponty and Ricoeur, emphasizing existential backgrounds of French thought and its adaptation of existential themes.

560 Contemporary Religious Thought (5)
Representative thinkers such as Tillich, Buber and others.

568 Phenomenology (5)

Method and philosophy of phenomenological movement from Husserl to Merleau-Ponty.

570 Indian Philosophy (5)

Classical Hinduism.

571 Buddhist Philosophy (5)

(alternate years). Abhidharma, Madhyamika, Yogacara, Zen and other philosophical doctrines of Buddhism.

575 Chinese Philosophy (5)

(alternate years). Major Chinese philosophers and schools of thought from earliest times to present.

690 Supervised Teaching (2)

Supervised experience, including observation, discussion and counsel.

691 Seminar in Philosophy (1-15, max 15)

Selected problems.

692 Special Studies (1-15, max 15)

Prereq: perm. Advanced study of philosopher, movement or problem, to provide intensified training in area of concentration related to but not necessarily that of student's thesis.

693 Seminar in Philosophy (1-2, max 15)

Prereq: perm.

695 Thesis (1-15, max 15)**PHOTOGRAPHY**

(See Art, Photography)

PHYSICAL EDUCATION

(See Health, Physical Education and Recreation)

PHYSICS

Graduate study and research leading to the master of arts, master of science (thesis optional) and the doctor of philosophy are offered in physics. Students who plan to enter these degree programs should have completed the requirements for a bachelor's degree with a major in physics, including a working knowledge of mathematics including integral calculus and the elements of partial differential equations, Fourier series and vector analysis. Students who lack such preparation should do remedial work along with their normal program of graduate study.

The graduate student in physics plans his individual program of studies in close cooperation with a senior faculty adviser. Courses in related fields such as chemistry, engineering and mathematics may be included in the program. The following courses are recommended to all MS (non-thesis) and PhD students in the first two years of graduate study: 605, 606, 607, 608, 615, 616, 621, 622, 623, 735, 736 and 891. For the MS (with thesis) no specific courses are stipulated, but a thesis, oral examination and related coursework must be completed. For the master of arts degree, a scholarly paper is required, and coursework for this degree frequently includes graduate work in other fields. The principal topics in which PhD research may be pursued are: (1) Experimental nuclear, solid state and low temperature, acoustical, x-ray and cosmic physics; (2) Theoretical—nuclear, many-body, fundamental particles and mechanics.

It is the policy of the department to encourage students to acquire and develop some knowledge of those foreign languages which are commonly used in the literature of physics and related sciences. The student will be guided by his adviser in the matter of which languages he could most usefully study. For the degree of doctor of philosophy a student must display an adequate reading knowledge of French, German or Russian.

503 Digital Computing Methods in Physics (3)

(spring). Practical computer programming (FORTRAN, etc.) with special emphasis on problems in physics; familiarization with practices in modern computation center.

511 Thermodynamics (4)

(fall). First and second laws of thermodynamics, phase changes and entropy. Discussion of temperature, thermodynamic variables, equations of state, heat engines.

512 Kinetic Theory and Statistical Mechanics (4)

(winter). Kinetic theory, transport phenomena and introduction to classical and quantum statistics.

520 Acoustics (3)

(spring). Vibration, sound radiation, sound propagation and practical aspects of sound. (Offered odd years only.)

521 Optics Laboratory (2)

(fall). Experiments in geometrical and physical optics including laser experiments.

522 Spectroscopy Laboratory (2)

Prereq: perm. (winter). Optical and radio-frequency spectroscopy; measurements of energy levels and quantum numbers of physical systems. Absorption and fluorescence, Zeeman effect, Faraday rotation, nuclear magnetic resonance, electron spin resonance.

531 Basic Electrical Measurements Laboratory (3)

(fall). Electrical and electronic measurements and techniques including some basic vacuum tube and semi-conductor circuits analysis, and basic amplification techniques. Applications to measurements of electronic circuits, electric and magnetic fields, temperature, etc.

541 Atomic and Nuclear Laboratory (2)

(fall). X-ray diffraction, refraction, polarization and absorption, Moseley's law, Planck's constant, crystal analysis and other experiments.

542 Atomic and Nuclear Laboratory (2)

(winter). Particle and radiation detectors, analysis of x-ray and gamma-ray spectra with scintillation and solid-state devices, Compton scattering, range of alpha particles and other experiments.

543 Atomic and Nuclear Laboratory (2)

(spring). Radioactivity, beta-ray spectroscopy, Rutherford scattering, lifetime of mu meson, velocity of gamma rays and other experiments.

545 Neutron Laboratory (2)

(fall). Selected experiments on neutron interaction with nuclei and with bulk matter.

546 Neutron Laboratory (2)

(winter). Continuation of 545. See 545 for description.

551 Quantum Physics (4)

(fall). Quantum effects in atomic and molecular physics, Schroedinger wave equation; basic ideas of quantum mechanics and application to atomic and molecular spectra and structures.

552 Quantum Physics (4)

Prereq: 551. (winter). Continuation of 551. See 551 for description.

553 Nuclear and Particle Physics (4)

Prereq: perm. (spring). Descriptive treatment of nuclear phenomena. Elementary theory of nucleon-nucleon interaction. Systematics of nuclear structure (shell model and collective model). Properties and interactions of fundamental particles. Devices and techniques of nuclear and high energy physics.

556 Physical Science for Secondary School Teachers (1-7)

Prereq: perm. (summer). Major physical science concepts found in Intermediate Science Curriculum Study Program.

561 Theoretical Classical Physics (4)

Prereq: perm. (fall). Advanced topics in mechanics, electricity and magnetism; Lagrange and Hamiltonian methods; Maxwell's equations and electromagnetic radiation.

575 Advanced Laboratory (1)

Prereq: 373 or perm. Wide selection of experiments from many areas of physics, limit of 2 students per section. Student may select up to 3 sections (i.e., 3 different professors' experiments) each qtr, but is not permitted to work under same professor more than once.

601 Graduate Laboratory (1-4)

(winter). Selected experiments from all areas of physics requiring accurate measurements with refined apparatus.

602 Graduate Laboratory (1-4)

(summer). Continuation of 601. See 601 for description.

605 Classical Mechanics (4)

(fall). Basic analytical techniques for point mass systems and rigid bodies in traditional and contemporary perspective; mathematical complements.

606 Classical Mechanics (4)

Prereq: 605. Continuation of 605. See 605 for description.

607 Electrodynamics (4)

(sequence begins fall). Deductive development from Maxwell's equations, including recent advances; special theory of relativity and applications to charged particle problems; mathematical complements.

608 Electrodynamics (4)

Prereq: 607. (sequence begins fall). Continuation of 607. See 607 for description.

609 Electrodynamics (4)

Prereq: 608. (sequence begins fall). Continuation of 607-608. See 607 for description.

613 Mathematical Physics Practicum (2)

Selected mathematical techniques important to physicists.

615 Mathematical Methods in Physics (4)

Mathematics to complement basic graduate physics courses. Curvilinear coordinates, special functions, Fourier analysis and others.

616 Mathematical Methods in Physics (4)

Continuation of 615. See 615 for description.

617 Methods of Theoretical Physics (3)

Selected advanced mathematical methods employed in theoretical physics. Group theory, linear operators and partial differential equations treated at regular intervals.

619 Advanced Acoustics (2)

Interaction of ultrasonic waves with gaseous, liquid and solid states of matter.

620 Advanced Acoustics (2)

Prereq: 619. Continuation of 619. See 619 for description.

621 Introductory Quantum Mechanics (4)

(fall). Basic applications of Schroedinger equation; operators, eigenfunctions and uncertainty relations; angular momentum, spin, exchange and symmetry effects, mathematical complements.

622 Introductory Quantum Mechanics (4)

Prereq: 621. (winter). Continuation of 621. See 621 for description.

623 Thermophysics (5)

(spring). Thermodynamical principles, potentials and equilibrium criteria; ensembles, fluctuations and partition functions; statistics of Bose-Einstein, Fermi-Dirac and Boltzmann; applications to ideal systems.

625 Atomic and Molecular Spectra (4)

(spring). General survey, using elementary quantum mechanics.

695 Thesis (as recommended by dept)**696 Special Study (1-6)**

Prereq: perm. Supervised individual study at the beginning graduate level. Can be used for writing MS paper.

720 Theoretical Acoustics (2)

(spring). Acoustic fields, scattering of acoustic waves and acoustic wave propagation.

726 Introduction to Nuclei and Particles (3)

(fall). Experimental and basic theoretical aspects of interactions of particles in matter. Elements of nuclear structure and nuclear reactions. Properties of subnuclear particles.

727 Introduction to Nuclei and Particles (3)

Prereq: 726. (winter). Continuation of 726. See 726 for description.

731 Introduction to the Solid State (3)

(sequence begins fall). Structure and thermal, electronic and magnetic properties of solids.

732 Introduction to the Solid State (3)

(sequence begins fall). Continuation of 731. See 731 for description.

733 Introduction to the Solid State (3)

(sequence begins fall). Continuation of 731 and 732. See 731 for description.

735 Quantum Theory (3)

(fall). Matrix mechanics, formal developments and methods of calculation; Dirac theory; mathematical complements.

736 Quantum Theory (3)

Prereq: 735. (winter). Continuation of 735. See 735 for description.

737 Second Quantization (3)

(spring). Basic techniques; emission and absorption of electromagnetic radiation; applications to many-body systems of diverse types.

741 Statistical Mechanics and Thermodynamics (2)

(fall). Selected topics.

742 Statistical Mechanics and Thermodynamics (2)

(winter). Continuation of 741. See 741 for description.

744 Solid-State Theory (3)

(fall). Applications of quantum theory to the perfect crystal and to imperfections in solids.

750 Introduction to Particle Physics (3)

Basic properties of subnuclear particles; relativistic kinematics, techniques of high energy physics; symmetry principles.

751 Particle Theory (3)

Prereq: 750 or perm. Theoretical formulations and current questions regarding nature of, and interactions between, subnuclear particles.

752 Particle Theory (3)

Continuation of 751. See 751 for description.

855 Nuclear Theory (3)

(fall). Theory of nuclear reactions and nuclear models.

856 Nuclear Theory (3)

(winter). Continuation of 855. See 855 for description.

871 Advanced Quantum Theory (3)

Selected topics.

875 Advanced Nuclear Theory (3)

(spring). Selected topics of current interest.

877 Advanced Solid-State Theory (3)

(spring). Selected topics.

891 Colloquium (1)

Selected topics of current interest. *Required of all graduate students.*

893 Seminar (1-4)

Thorough study of important area. Experimental techniques, classic experiments and statistical methods discussed at regular intervals.

894 Special Topics (1-4)

Lectures on special topics such as optical physics, continuum mechanics, advanced quantum theory or other subjects not specified under regular course headings.

895 Dissertation (as recommended by dept)**896 Special Study (1-6)**

Prereq: perm. Supervised individual study in preparation for research.

897 Research Seminar (1-4)

Prereq: perm. Intensive study of selected subjects by special groups. (A) Nuclear; (B) High Energy; (C) Acoustics; (D) Solid State; (E) Theoretical.

898 Research (as recommended by dept)

Prereq: perm.

899 Problems in College Teaching (1-3)

For all graduate students assigned to teaching duties.

PORTUGUESE

(See Foreign Languages and Literatures)

PSYCHOLOGY

Applicants for graduate study in psychology must have completed at least 27 quarter hours of undergraduate psychology, including a course in statistics and one in experimental psychology, with a grade average of not less than 3.3 (B+). and an overall undergraduate average of 3.0 (B). A report of scores on the Graduate Record Examination (verbal, quantitative and advanced psychology), transcripts of all college work and recommendations from three psychologists are required. Applicants for the doctoral level must have a grade average of 3.4 in graduate courses completed and should present the same scores, transcripts and recommendations as the beginning student, with the addition of the Miller Analogies Test score.

The master's degree may be a terminal degree in general psychology. A specialized master's degree may be taken in clinical or experimental (general, developmental or social) or school psychology by those who want subdoctoral training which offers suitable preparation for positions in the public schools, in the clinical area or in two-year college teaching. The master's degree may also be planned as preparation for doctoral study in experimental (general, developmental or social), clinical-counseling or industrial/organizational psychology. Doctoral students in clinical or counseling psychology must complete a year of predoctoral internship in an approved agency.

The Center for Psychological Services, the Athens Mental Health Center and other local facilities provide opportunities for the training of graduate students in psychology, as well as services to University students, staff and faculty.

520 Elementary Statistics (5)

A first statistics course for graduate students who did not have such an undergraduate course. (Does not carry degree credit. Not open to students who have had Psy 221.)

525 Elementary Experimental Psychology (5)

Prereq: perm. First course in designing experiments for graduate students who did not have such an undergraduate course. (Does not carry degree credit. Not open to students who have had Psy 226.) 2 lec, 4 lab.

541 Behavioral Measurement (5)

Prereq: 520 or EdRS 620 or equiv. Testing and measurement; basic criteria including objectivity, reliability, validity. Methods of test construction and validation. (Required of students not having 241.)

559 Field Work in Psychology (1-15)

Prereq: perm. Applied supervised psychological practice in field-work agency approved by dept. (Does not count toward degree credit.) May be repeated. 1-15 lab.

590 Readings in Psychology (1-5, max 20)

Prereq: perm. To broaden training of master's or doctoral level students in areas in which they need further work which cannot be obtained through specific courses at present.

618 Systems of Psychology (5)

Prereq: perm. Philosophy of science in psychology; nature of observation, theory construction and explanation, with an historical review of important systematic positions in psychology.

621 Intermediate Statistics for Behavioral Sciences (5)

Prereq: perm. Statistical inference and most commonly used tests of hypotheses involving normal curves, *t* test, chi-square and *F* distributions; introduction to probabilistic classification and Bayesian statistics. 4 lec, 1 lab.

622 Intermediate Correlation and Regression (4)

Prereq: 621. Two-variable correlation and regression, partial and multiple correlation, non-linear relationships.

623 Design and Analysis of Experiments (4)

Prereq: 622 or EdRS 721. Independent groups, repeated measures and mixed analysis of variance designs. Matching statistical analyses to experimental procedures.

626 Advanced Experimental Psychology (5)

Prereq: 621. Experimental design and techniques. Individual experiments.

633 Psychology of Personality (5)

Prereq: perm. Development and organization of personality; evaluation of major theoretical viewpoints; review of research on personality structure, dynamics and change.

640 Practicum in Individual Study of Children (4)

Prereq: 747 or with 747. Supervised experience in selecting and administering tests to children referred for individual study; collecting educational and developmental data and integrating findings in reports and recommendations.

677 Practice of School Psychology (4)

Prereq: perm. Responsibilities and activities of school psychologist.

678 Internship in School Psychology (1-15)

Prereq: perm. Supervised experience in school psychology in public school setting. Apply before March 1 for following September. (*Does not count toward degree credit.*)

695 Thesis (1-10)

Prereq: perm.

701 Experimental Sensory Psychology (5)

Prereq: 712 or perm. Analysis of classical sensory systems (vision, audition, olfaction, somatic, regulatory, etc.) and their contributions to various behaviors. 4 lec, 1 lab.

703 Advanced Learning (5)

Prereq: perm. Lectures and readings covering theoretical works in field of learning.

704 Human Learning and Cognitive Processes (5)

Prereq: perm. Theory and research in human cognitive processes such as learning, memory, concept formation, problem solving, motor skills and language within an information processing point of view.

706 Psychology of Communication (4)

Prereq: perm. Application of communication theory, psycholinguistic principles and readability measurement to process of communication.

707 Psycholinguistics (4)

Prereq: perm. How people produce, understand and acquire language within framework of major psychological and linguistic theories of language. Emphasis on user of language rather than on language.

710 Motivation and Emotions (5)

Prereq: perm. Dynamics of animal and human behavior; drives, desires, incentives; emotion in relation to motives.

711 Perception (5)

Prereq: perm. Perception of time, space, motion and social phenomena.

712 Physiological Psychology (5)

Prereq: perm. Biological basis of behaviors, with emphasis on central nervous system. 4 lec, 1 lab.

714 Comparative Psychology (5)

Prereq: perm. Behavior of lower and higher organisms leading up to man.

715 Psychology of Human Differences (5)

Prereq: perm. Methodology, basic principles and general findings in individual differences in intelligence, personality, interests and perception; group differences by sex, age, race and socio-economic class.

717 History of Psychology (4)

Prereq: perm.

727 Psychophysiology and Attention (4)

Prereq: perm. Human psychophysiology. 2 lec, 2 lab.

735 Experimental Social Psychology (5)

Prereq: perm. Major theoretical and research trends, with emphasis on attitudes, social perception and small-group behavior.

736 Advanced Social Psychology (5)

Prereq: perm. Major research and theoretical trends in social psychology; observational learning and social motivation.

737A Psychopathology, General (3)

Prereq: perm. Theoretical and empirical literature on definitions and systems of classifying deviant behavior patterns. Coverage of situational reactions, neuroses, character disorders, psychoses, organic brain damage and mental retardation.

737B Psychopathology, Research Survey (3)

Prereq: perm. Intensive surveys of research literature in selected areas of psychopathology including problems of classification, symptoms and treatment of psychoses, neuroses, personality patterns, mental retardation and specific learning disabilities.

737C Psychopathology of Childhood (3)

Prereq: perm. Definitions and models of deviant childhood behavior. Comparisons of child and adult patterns of clinical psychopathology. Attention to physical, learned and social bases of deviant behavior.

741 Individual Intelligence Testing I (4)

Prereq: 541 or equiv and perm. Theory, methods, practice and results of Wechsler intelligence tests. 2 lec, 1 lab.

741A Individual Intelligence Testing, Wechsler Adult Intelligence Scale (2)

Prereq: perm. Student must take 1 cr of 745 concurrently; must follow with 741B.

741B Individual Intelligence Testing; Wechsler Intelligence Scales for Children (2)

Prereq: perm, 741A. Student must take 1 cr of 745 concurrently.

742 Individual Intelligence Testing II (4)

Prereq: 541 or equiv, perm. Theory, practice and interpretation of Stanford-Binet and other individual tests for children.

743 Psychodiagnostic Test Assessment I (4)

Prereq: 741. Use of tests for assessment of psychopathologic personality.

744A Assessment II (3)

Prereq: 743, 737. Objective tests. Continuation of 743.

744B Assessment II (3)

Prereq: 743, 737. Projective tests. Continuation of 743.

745 Practicum in Clinical Skills (1-15)

Prereq: perm. Introduction to and application of basic clinical skills including history taking, diagnostic interviewing and patient management.

746 Practicum in Psychological Assessment (1-5)

Prereq: 743. Supervised practice in administration, interpretation and reporting of psychodiagnostic tests.

747 Individual Tests: Exceptional Children (4)

Prereq: 741, 742, perm. Special instruments and techniques for testing intelligence of exceptional children; supervised experience. 2 lec, 5 lab.

751 Counseling Psychology (5)

Prereq: 541 or equiv; 737 or equiv. Theories and techniques used in counseling with personnel, vocational, educational and personal-social problems. Supervised counseling laboratory experience.

753 Psychotherapy I (4)

Prereq: 737. A survey.

756 Introduction to Behavior Modification and Therapy (3)

Prereq: 703 or 704.

759 Field Work in Psychology (1-15)

Prereq: perm. Applied supervised psychological practice in a field-work agency approved by dept. (Does not count toward degree credit.) May be repeated. 1-15 lab.

761 Seminar in Industrial Psychology I (4)

Prereq: perm. Selected topics. Student may enroll in either 761 or 762 or in both courses in either order.

762 Seminar in Industrial Psychology II (4)

Prereq: perm. Selected topics. Student may enroll in either 761 or 762 or in both courses in either order.

763 Human Factors (1-5)

Prereq: perm. Psychological factors in human information-processing, decision-making, signal detection and man-made machine systems.

764A-G, J-K Advanced Industrial Psychology (3 each)

Prereq: perm. Student may take up to 6 of the following: A. Selection and evaluation; B. Training; C. History of industrial psychology; D. Job satisfaction; E. Leadership and supervision; F. Motivation and production; G. Social psychology of organizations; J. Small-group dynamics; K. Cross-cultural/comparative organizational behavior.

773 Developmental Psychology (5)

Principles and research covering development of human behavior. Emphasis on human lifespan, developmental research and methodology. Topics include factors influencing development, and perceptual, cognitive, linguistic and social development.

775 Psychology of Exceptional Individuals (5)

Prereq: perm. Characteristics and problems of exceptional individuals; mentally retarded, mentally superior, sensory handicapped, emotionally disturbed and culturally disadvantaged.

776 Programmed and Computer-Assisted Instruction (4)

Prereq: perm. Use of programs and machines; principles and procedures in preparing programs; writing of objectives and frames for trial program.

790 Readings in Psychology (1-5, max 20)

Prereq: perm. To broaden training of master's or doctoral level students in areas in which they need further work which cannot be obtained through specific courses at present.

791 Research (1-5)

Prereq: perm. (May be repeated.)

793 Seminar in Teaching of Psychology (2)

Prereq: perm.

825 Advanced Regression (4)

Prereq: 623. Multivariate techniques in analysis of behavioral data.

826 Advanced Testing Principles (4)

Prereq: 623. Test theory and statistical considerations in construction, use and interpretation of psychological measures.

827 Advanced Quantitative Methods (2-4)

Prereq: perm. Advanced instruction in selected general techniques for identifying and quantifying behavior characteristics. Techniques of multivariate analysis, Bayesian analyses, analysis of variance, nonparametric analyses and multidimensional scaling.

828 Psychological Data Analysis by Computer (4)

Prereq: 623. Review of psychological statistics; computer capabilities. Trend analysis, covariance, multiple regression and advanced analysis of variance.

833 Advanced Theories of Personality (5)

Prereq: 633. Analysis in depth of selected modern theories and related research, taken from ego psychology, cognitive-perceptual, dimensional, developmental or social viewpoints.

845 Psychodiagnostic Test Assessment III — Integration (1-5)

Prereq: 747. Integrated personality evaluation from clinical testing. Evaluation of clinical cases and report writing.

852 Advanced Counseling Psychology (4)

Prereq: 751 or equiv, perm. Selected topics and research on counseling theory, practice and professional issues.

853 Psychotherapy II (3)

Prereq: 743, 753. Theory and practice in counseling and psychotherapy with personal-adjustment cases.

854 Psychotherapy III (3)

Prereq: 853. Continuation of 853.

855 Practicum in Psychotherapy (1-4, max 8)

Prereq: 854 or with 854. Supervised experience in counseling and psychotherapy.

856 Practicum in Counseling Psychology (1-4, max 8)

Prereq: 751, perm. Experience in counseling persons in clinical, agency or industrial setting.

857 Group Psychotherapy (4)

Prereq: 753 and perm. Introduction to theory and practice of group psychotherapy. Includes participation in sensitivity group training. Intended primarily as direct preparation for 858.

858 Practicum in Group Psychotherapy (1-4)

Prereq: 853, 857, perm. Supervised experience in practice of group psychotherapy. (Student must enroll for at least 2 consecutive qtrs of 3 hrs per qtr.)

859 Practicum in Behavior Therapy (1-2)

Prereq: 756.

881 Introduction to Community Mental Health (5)

Prereq: 55 hrs in psychology. Community (or social system) prevention and intervention skills for improving behavioral and emotional human effectiveness discussed. Specific attention paid to local and state programs attempting to achieve these goals. Various theoretical and conceptual models of community mental health considered.

882 Practicum in Community Mental Health (5)

Prereq: 60 hrs in psychology including 881. Graduate students assume major responsibility (under supervision) in a practical application of community mental health through undertaking a specific project. May include: (a) consultation with a social system, (b) surveying and evaluating mental health needs of a community or social system culminating in practical and realistic proposals for that community, (c) writing a service grant, research grant or demonstration grant, (d) a community mental health research project, (e) engaging in crisis-intervention, (f) conducting para-professional training programs.

891 Research in Psychology (1-6)

Prereq: perm.

894A-X Advanced Seminar in Psychology (1-5, max 18)

Prereq: perm.

895 Dissertation (1-15)
Prereq: perm.

QUANTITATIVE METHODS (Concentration area only)

500 Mathematical Economics Foundations (4 or 5)

Introduction to differential calculus, integral calculus and linear algebra with economic and business models and application.

503 Statistical Quality Control (4)

Prereq: perm. Application of sampling theory to quality control: in process control (i.e., control charts) and sampling inspection (i.e., attribute and variable.)

510 Statistical Foundations (4 or 5)

Introduction to probability theory, statistical distributions, sampling, estimation, testing and decision theory for economists and business administration.

520 Introduction to Computers and FORTRAN (4)

Prereq: perm. Use of computers in organizations to store, process and deliver data. Information system, communications, real time and using FORTRAN language to solve problems.

525 Advanced FORTRAN (4)

Prereq: perm. Application of FORTRAN programming language to problems in marketing, finance, management, accounting and economics.

530 COBOL Programming (4)

Prereq: perm. Introduction to business-oriented computer language of COBOL.

534 Design of Experiments (4)

Prereq: perm. Nested, split plot; replicated designs; multi-factor experiments; compounding fractional factorials; analysis of covariance.

538 Nonparametric Statistics (4)

Prereq: perm. Appropriate statistical tests; power; asymptotic efficiency; parametric vs. nonparametric; Fisher's randomization method; run test; multi-sample tests, one-way ANOVA and two-way ANOVA; miscellaneous tests.

541 Multivariate Analysis (4)

Prereq: perm. Multivariate normal distribution, chi-square and t-tests, discriminant function, principle components, analysis of covariance, applications.

545 Forecasting Business Trends (4)

Prereq: perm. Forecasting techniques and methodologies as tools used by decision makers to provide basis for determining future business environments. Forecasting as means for integrating total corporate planning with technical marketing and financial planning.

550 Sequential Analysis (4)

Prereq: perm. Theory of Wald's sequential probability ratio test, problems of composite hypotheses, Barnard sequential t-test, sequential interval estimation, applications of general sequential theory to special problems.

551 Statistical Survey Techniques (4)

Prereq: perm. Techniques of small sample tests applied in opinion polling, business, economics and government.

554 Intermediate Probability Theory (4)

Prereq: perm. Random variables—multidimension (continuous and discrete), moments, moment-generating functions and expected values, limiting theorems.

555 Sampling Theory (4)

Prereq: perm. Estimation, tests of hypotheses, sampling, analyses of variance, design of experiments.

556 Regression Analysis (4)

Prereq: perm. Time series analysis, game theory, regression and correlation analysis and introduction to decision making.

560 Introduction to Decision Theory (4)

Prereq: perm. Sequential analysis, game theory, uncertainty due to ignorance of states of nature, utility and strategies.

561 Bayesian Statistics (4)

Prereq: perm. Probability and statistics taught from Bayesian point of view.

562 Bayesian Decision Theory (4)

Prereq: perm. Probability as a measure of degree of belief, Bayesian decision criterion, Markov processes, decision trees and value of information.

580 Computer Systems and Design (4)

Prereq: perm. Architecture of computer and its auxiliary storage devices; data set organizations: real time, time sharing; assembly languages and compiler programs.

581 Mathematical Methods of Marketing Analysis (4)

Prereq: perm. Quantitative techniques used in analysis of marketing problems and applications of these methods to problem situations. (Course will be taught on team basis with marketing and quantitative methods facilities.) (Same as Mkt 581.)

585 Simulation (4)

Prereq: perm. Models of physical systems are constructed and manipulated by computer with application to marketing, finance and management situations.

590 Systems and Procedures (4)

Prereq: perm. Orderly study of detailed methods for collecting, organizing and evaluating information to improve operations of an organization.

614 Operations Research (4)

Quantitative models, networks, inventory policy, production control, transportation problems, market analysis and queueing.

635 Econometrics I (4 or 5)

Application of statistics to economic and business data, design and estimation of economic and business models, multiple regression theory and stepwise regression programs.

636 Econometrics II (4 or 5)

Topical areas of econometrics such as autocorrelation, lagged variables, dummy variables, multicollinearity, simultaneous equation models and selected computer programs. (Same as Econ 636.)

651 Nonparametrics for Business (4)

Prereq: perm. Mathematical models of probability theory and sampling with applications.

691 Seminar (3, 4 or 5)

Selected topics of current interest.

693 Readings (1-15)

Readings on topics selected by student in consultation with a faculty member.

695 Thesis (1-15)

697 Independent Research (1-15)

Research under direction of a faculty member.

698 Internship (1-15)

699 Research (3, 4 or 5)

Methodology, analysis of data and preparation of research findings.

RADIO-TELEVISION

MASTER'S PROGRAM

Prospective graduate students in the School of Radio-Television should present a baccalaureate degree which includes a reasonable background in radio-television and closely allied areas of communication. Because academic ability, experience records and personal recommendations weigh so heavily in considering the student for admission, some students will enter the radio-television graduate program without such a background. Upon the advice of their respective program committees, these students may be required to make up this deficiency through further work at the undergraduate level or additional graduate courses, according to the needs of the individual.

The typical master's candidate will pursue a program which consists of 45 quarter hours of credit, including up to five hours of credit for the thesis. At least 20 quarter hours will be taken in the major field, and at least 12 quarter hours will be taken in one or more supplementary areas. Depending on personal and career goals, some students, with the consent of the faculty, may pursue a nonthesis program of 52 quarter hours in the major field, including a minimum of 12 quarter hours in one or more supplementary areas, and such other courses, work or research experiences as seem appropriate to the student's goals.

In either the thesis or nonthesis program the student is required to take R-TV 501—Introduction to Graduate Study. The nonthesis student is further required to take R-TV 602—Research Methods in Mass Communication. Students in either program are permitted to elect their supplementary area(s) either within or outside the College of Communication.

DOCTORAL PROGRAM

(See Mass Communication)

501 Introduction to Graduate Study (4)

Analysis of scholarship and research as a foundation for graduate study.

510 Principles of Television Production (4)

Production aspects of television and general principles of equipment operation and crew responsibilities. 2 lec, 4 lab.

513 Advanced Radio Production-Direction (4)

Prereq: perm. Special problems in program development for radio. 2 lec, 4 lab.

518 Advanced Television Production-Direction (4)

Prereq: perm. Individual and group projects in development (first course) and production (second course) of television program or series, stressing experimental techniques.

519 Advanced Television Production-Direction (2)

Prereq: 518. Continuation of 518. See 518 for description. 519 covers production.

552 TV Newsfilm Production and Editing (3)

Prereq: perm. Principles and practices of TV newsfilm production and editing.

602 Research Methods in Mass Communication (4)

Prereq: 501. Statistics; problems, methods and techniques of radio-television scholarship and research.

631 Dramatic and Documentary Writing (4)
Writing and critique of form, structure and presentation of both dramatic and nondramatic programs and series. 4 lec.

632 Advanced Dramatic and Documentary Writing (4)

Prereq: perm. Advanced writing course in which experienced student creates substantive scripts in documentary and dramatic areas.

670 Broadcasting and the Public (4)

Interrelationships between broadcaster, government and public; bases for evaluation of role and significance of broadcasting in society. 4 lec.

680 History of Radio and Television Programming (4)

Prereq: 779. Descriptive analysis, employing appropriate examples, of the development of program forms which have most characterized American broadcasting, with emphasis on influence exerted by specific historical developments and interrelationships.

694 Independent Study (1-12)

Prereq: perm. Individual research on special problems. Projects must be approved prior to registration.

695 Thesis (1-8)

703 Statistical Analysis in Mass Communication Research (4)

Prereq: 602 or perm. Statistical techniques as applied to problems in mass communication.

705 Research Internship (1-9)

Prereq: Acceptance by competition only. Opportunity for students to implement and complete major research study under supervision.

740 Radio and Television in Education (4)

Summary, analysis, application and evaluation of TV and radio research in teaching-learning process. 4 lec.

741 Instructional Methods in Educational Radio-Television (4)

Practical applications of television in public school classroom. Utilization of television programs as adjunct to instruction. Preparation of instructional units for telecasting. 2 lec, 4 lab.

750 Broadcast Economics (4)

Economic structure of broadcasting industry, economics of its units and its economic relationships with other industries. Case studies in budget planning and cost control. 5 lec.

751 Broadcast Management (4)

Functions, structure and organization of broadcasting stations; case studies relating to problems of personnel, sales, programming and management. 5 lec.

753 Broadcasting Law and Regulations (4)

Socio-political control of broadcasting; effect of laws, regulations and public pressures upon programming policies. 5 lec.

755 Broadcasting Programming (4)

Programming concepts, resources, costs, selection and scheduling. 5 lec.

757 Broadcast Sales and Sales Management (4)

Problems and practices of television and radio sales and sales management, including case studies in sales development, pricing, promotion and other problem areas. 5 lec.

767 Comparative Systems of Broadcasting (4)

Broadcasting systems of other countries in terms of relevant political, social, economic and cultural influences. 5 lec.

769 International Broadcasting (4)

Development, effect and control of international broadcasting as instrument of foreign policy.

771 Social Impact of Mass Communication (4)
Group and individual investigation into research methodology and literature on effects of mass media upon society, with particular reference to broadcasting. 4 lec.

779 History of Broadcasting (4)
Origin of systems of radio and television communication and their development to the present day. 5 lec.

786 Colloquium in Broadcasting (1-5)
Study and analysis of current issues and problems in radio-television.

804 Seminar in Mass Communication Research (4)

Prereq: 703. Intensive study of research methodologies in radio-television scholarship; individual projects.

842 Seminar in Educational Radio-Television (4)
Intensive examination and evaluation of radio-television utilization in educational process.

843 Seminar in Pedagogy (4)
Problems, methods and techniques of teaching of radio-television at college level.

865 Seminar in International Broadcasting (4)
Problems in socio-political control of broadcasting related to developing systems of other nations and international implications of technological development of broadcast communications.

884 Seminar in Criticism (4)
Intensive critical analysis of broadcast programs and program schedules from socio-cultural, literary, political and broadcast industry points of view.

894 Independent Study (1-12)
Prereq: perm. Individual research on special problems. Projects must be approved prior to registration.

895 Dissertation (1-24)

REGIONAL PLANNING

An interdisciplinary program leading to the degree of master of regional planning is offered to a limited number of students. The program consists of a minimum of two years of intensive study in an individually prescribed combination of coursework in architecture, economics, engineering, geography, government, management and sociology. Planning studies and research experience will be conducted, where possible, in conjunction with action-oriented university and community organizations.

To be admitted, a student must have a bachelor's degree in architecture, economics, engineering, geography, government, management, sociology or related fields from an accredited institution.

501 City and Regional Planning Studio I (6)
Prereq: perm. (fall). Introduction to planning practice and process; studio experience in planning methodology as applied to problems of urban settlement and determination of public policy.

502 City and Regional Planning Studio I (6)
Prereq: 501. (winter). Continuation of 501. Studio experience with emphasis on development of planning objectives, principles and criteria for locating and designing urban activity systems.

503 City and Regional Planning Studio I (6)
Prereq: 502. (spring). Continuation of 502. Studio experience with emphasis on programming, implementation and evaluation of planning alternatives.

571 Seminar in Land Use Planning — History (3)

Prereq: perm. (fall). History of American City Planning movement in its varied economic, political and social phases. Relationship between times and planning methods which were tried. Discussion of past approaches best suited for use in present situations.

572 Seminar in Land Use Planning — Gaming (3)

Prereq: 571. (winter). City planning games and gaming theory. Active student participation in simulation to communicate concept of interrelatedness of activities in urban, political and general social environments.

574 Seminar in Planning Theory (3)

Prereq: perm. (winter). Examination of pertinent research to understand patterns of human association, patterns of human settlement and role of planner in managing an urbanizing world.

575 Seminar in Social Planning Theory (3)

Prereq: 574. (spring). Continuation of 574 with emphasis on detailed examination and criticism of selected planning issues. Examples include: planner and the poor; planning for economic and social welfare; planner's relationship to community.

578 Seminar on Environmental Planning (3)

Prereq: perm. (spring). Introduction to application of ecological and geological principles to land planning situations. Examination of specific known problem areas and alternative solutions attempted and proposed.

579 Seminar in Regional Planning and Development (3)

Prereq: perm. (winter). Introduction to regional analysis and planning, including concept of a region, survey of regional planning theory and examination of regional development issues and objectives.

601 City and Regional Planning Studio II (6)

Prereq: 503. (fall). Preparation of plans and programs for urban and rural areas, metropolitan and other regional areas. Emphasis on problem solving through student research, policy formulation and program development in actual planning situations.

602 City and Regional Planning II (6)

Prereq: 601. Continuation of 601. See 601 for description.

603 City and Regional Planning II (6)

Prereq: 602. Continuation of 601-602. See 601 for description.

671 Seminar in Advanced Planning Theory — Housing (3)

Prereq: perm. (fall). Studies in housing and redevelopment policy; social, economic and physical aspects of housing problems; development of federal and local policies with respect to private housing market, slums and blight.

672 Seminar in Advanced Planning Theory — Law (3)

Prereq: 571 or 574. (winter). Introduction to legal basis of planning and development of planning law with respect to authority to control development through subdivision regulations, zoning, etc., authority to plan, content of planning document and implementation of plans.

673 Seminar in Advanced Planning Theory — Management (3)

Prereq: 571 or 574. (spring). Examination of planning decision theory and implementation strategies to develop operational guidelines for increased planning effectiveness and public policy making.

RUSSIAN

(See Foreign Languages and Literatures)

SOCIOLOGY

A graduate major in sociology offers preparation for teaching, research and advanced graduate training. Undergraduate preparation should include 20 quarter hours in sociology, at least 16 quarter hours in other behavioral sciences and a course in statistics.

The Departmental Graduate Student Handbook details the organization of the MA program, and is available upon request. Briefly, each student admitted to MA study selects, preferably by the end of his second quarter, three faculty members to serve on his committee. Decisions concerning the student's preparation (i.e., course choice, scheduling and independent study) are made by the committee. Graduate evaluation by thesis, comprehensive examination or other means is determined by the committee.

A minimum of 50 quarter hours of graduate work is required for the degree. The student is advised to allow for six quarters of study.

503 Development of Sociological Thought (5)
Prereq: perm. Major sociological concerns and concepts in their social-historical setting. Emphasis on 18th and 19th centuries.

504 Modern Sociological Theory (5)
Major sociological conceptual frameworks in 20th century.

505 Readings in Sociology (1-5, max 15)
Independent directed readings designed to expand student's understanding in selected area of interest.

507 Social Process and Change in Southeast Asia (5)
Contemporary processes of change in traditional and communal patterns in mainland and island regions and differential impact of change upon various groups, personality and social relationships.

508 Latin American Society (5)
Prereq: perm. Intensive study of Latin American society from a sociological perspective. Emphasis on contemporary Latin American values, population problems, man-land relations, levels and standard of living, social institutions, urbanization and social change.

512 Public Opinion Processes (5)
Attitudes and opinions in relation to public opinion; political socialization and participation; social status, reference groups, decision-making and role of mass media. Structure and process in behavior of publics.

513 Mass Communication (5)
Personal and social functions of content in newspapers, radio, television and films. Types of audiences and communication effects. Organization and control of mass media and problems in evaluation.

514 Contemporary Social Movements (5)
Organized movements resulting in major social changes: revolutionary, nationalistic, reform; religious agitation, leadership, ideology; case studies of typical movements.

516 Society and the Individual (5)
Exploration of compatibilities and contradictions in psychological systems, culture and social structure.

519 Small Groups (5)

Small group as unit of social systems; communication patterns, role definition, leadership, cohesiveness, etc.; review of current literature.

521 Comparative Study of Family and Marriage (5)

Intra-cultural and cross-cultural differences and similarities in marriage patterns and family types; their social and cultural determinants and consequences and their significance for family life.

522 The American Family System (5)

Evolution of American family from colonial to present time. Analysis of structural and functional trends in light of theory and research.

524 Urban Sociology (5)

Historical development and recent emergence of city as dominant feature of modern social life. Demographic and ecological patterns and social organization of urban region.

525 Rural Sociology (5)

Rural population, community and institutions in America and other societies. Historical developments and current trends. Rural life organizations and movements.

526 Industrial Sociology (5)

Interrelationships between industrial and social order. Social organizations and processes within formal and informal structures of industrial unit.

528 Sociology of Religion (5)

Prereq: perm. Interrelationship between religious institutions and social structure from comparative perspective but with particular reference to American society.

530 Sociology of Organization (5)

Organization and structure of social groups. Basic cultural patterns of economic, kinship and other institutions. Integration and disintegration of social groups and institutions.

531 Social Stratification (5)

Social and economic classes, castes and other social strata; their origin, changes and correlates in other spheres of society.

532 Political Sociology (5)

Social and cultural basis of influence, power and authority. Informal aspects of political process in groups and institutions other than government.

533 Sociology of Occupations and Professions (5)

Prereq: perm. Professionalism as characteristic of modern economic and industrial complexes; popular conception and modern theory; social and technological preconditions; occupation-profession continuum; components, barriers and strategy; mock-professionalism; motivation and satisfaction; controls; professionalism in particular professions.

541 Population Theories (5)

Major theoretical frameworks in population analysis, how they account for changes in fertility, mortality and migration. Impact of these changes on human society.

550 Social Statistics (5)

Prereq: perm. Principles and procedures in treatment and presentation of quantitative social data.

553 Research Problems in Sociology (1-5, max 15)

Prereq: 550 and written perm. Individual research problem areas in which student has demonstrated ability and interest.

564 Social Control (5)

Nature of institutional control and sociocultural constraint as they affect human behavior. Theories and research.

565 Social Change (5)

Dynamics and processes by which social change takes place; innovation and its diffusion, industrialization and modernization, social evolution, planned change.

600 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

601 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

602 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

603 Seminar in Social Disorganization (4-6)

Prereq: perm. Critical examination of topics in area of social disorganization.

604 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

605 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

606 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

607 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

608 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

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Prereq: perm. Critical examination of selected topic.

611 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

612 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

613 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

614 Graduate Seminar (4-6)

Prereq: perm. Critical examination of selected topic.

615 Measurement of Effect in Mass Communications (5)

Prereq: 513. Problems and methods of research designed to measure attitude, opinion and behavioral change related to mass media content. Critiques of major studies; planning of study of interest to student.

616 Propaganda Techniques and Objectives (5)

Prereq: 512, 513 or equiv. Use of mass communication to instigate behavioral change; psychological warfare, international political propaganda, coercive persuasion; individual and group susceptibility; methods of propaganda analysis.

622 Family and Community (5)

Analysis of family system vis-a-vis economics, stratification, education and other social systems. Impact of migration, urbanization and social change in general on family structure and functioning. Treatment of American family as typical case.

654 Social Research Methods (5)

Analysis of process of sociological research in terms of problem definition, research design, data sources and methods of data analysis.

695 Thesis (1-12, max 12)

Prereq: perm.

SOUTHEAST ASIAN STUDIES

(See International Affairs)

SPANISH

(See Foreign Languages and Literatures)

SPEECH

(See Hearing and Speech Sciences or Interpersonal Communication)

SWAHILI

(See Foreign Languages and Literatures)

THEATER

The School of Theater offers programs leading to master of arts and master of fine arts degrees. Graduate candidates are required to participate in the production activities of the school in supplementation and extension of their academic work insofar as appropriate to their educational programs.

The production program of the school is conducted in two adjoining buildings. The first is Kantner Hall, housing a comfortable and well-equipped proscenium theater, a small studio-classroom theater, scenery and costume laboratories and related facilities. A second theater, incorporating a thrust stage and capable of modification for use in various theatrical forms, is located in the new Radio-Television Communication Building next door. The school's main office is also located there.

Applicants for admission must possess a baccalaureate degree from an accredited college or university and present an academic background equivalent to a theater or speech/drama major, normally including a minimum of 24 semester hours, or 36 quarter hours, in theater and closely related courses. For unconditional admission the student must have a satisfactory academic record, with strong indications of success in his chosen area, and sufficient preparation to qualify for graduate courses to be included in the program. Any deficiencies must be made up by taking appropriate undergraduate courses without graduate credit, or graduate courses in addition to normal requirements.

Applicants for entrance into one of the professional MFA programs must demonstrate qualification by audition, submission of portfolio, interview or other appropriate means before final approval is granted. This requirement is in addition to the basic admission standards for entrance into the graduate program of the School of Theater.

It is expected that each candidate will have a firm grounding in theater history and dramatic literature as well as demonstrable proficiency in fundamental production techniques, or that coverage of these areas will be included in his graduate program. Students will be tested or otherwise required to demonstrate a satisfactory grasp of basic areas upon entering the school.

Throughout the program the student will be closely observed and counseled by the faculty and his progress will be reviewed formally at periodic intervals. At the end of any quarter he may be recommended for transfer to another sequence or degree program within the school, required to modify his program or denied further enrollment as a degree candidate in the School of Theater.

Each graduate student will, at the earliest opportunity after enrolling, submit (with the counsel of his major adviser) a complete program of proposed courses. This will include a major sequence and, as appropriate to his needs and career goals, a minimum of 12 credits of approved supplementary courses within or outside the School of Theater.

MASTER'S PROGRAMS

The MA degree is fundamentally a scholarly program in history of theater and dramatic literature in pursuance of which the candidate has two options. The basic requirement of 45 hours beyond the baccalaureate degree and the passing of a departmental comprehensive examination may be completed in three quarters of residence, or the candidate may elect to extend his residence to four or more quarters, in which case a greater diversity of courses may be selected presumably to culminate in from six to 12 hours in a thesis project of a scholarly or critical nature.

The MFA degree requires a residence period of at least six quarters, a minimum of 60 quarter hours of graduate credit beyond the baccalaureate degree and a thesis or a minimum of 12 additional credits in lieu of the thesis. The decision as to whether the student will submit a thesis or appropriate graduate credits will be made by the faculty upon recommendation of the adviser.

The major field will be selected from one of the following professional sequences: acting, directing, production design, playwriting and children's drama. The major will consist of 30 to 48 hours and a minimum of 12 hours will be chosen outside the area of concentration.

Following are the special requirements of major sequences:

Acting

Admission to the professional sequence in acting is by audition only. At the end of each quarter the student will be notified whether he may proceed into the next level. Minimum course requirements include 48 credits in acting courses, 12 credits in other appropriate courses within or outside the school and a thesis or 12 additional credits of nonthesis courses.

Production Design

Admission to this professional sequence is granted to the student who qualifies on the basis of a design portfolio and/or a personal interview with the design staff. The student must take work in areas of scene design, costume design and lighting and technology. His major program will include a minimum of 16, 12 and eight quarter hours distributed in these three areas according to his option. In addition to ThAr 500, he will also take at least eight hours of theater history, ten credits of electives of which three hours must be outside the School of Theater and a culminating seminar in production design. The thesis requirement may be met by a research study or a creative project or by 12 hours of approved nonthesis courses.

Directing

Admission to the professional directing sequence will be limited to a few carefully selected applicants chosen on the basis of experience and potential as demonstrated through personal interview, recommendations and, if needed, examination. The student's progress will be monitored carefully and he will be permitted to continue only through demonstrated aptitude and accomplishment. Minimum course requirements include 32 credits in directing, acting, advanced design/technical and theater management/administration courses, 18 credits in theater history and literature courses, and ten additional credits in approved elective courses. The program will include a series of practical production experiences in stage management and directing, culminating in the staging of a significant directorial project. This requirement may be in addition to, or a part of, the required thesis or 12 credits of approved nonthesis courses.

Playwriting

Students are accepted only after submission of representative examples of previous creative writing and/or personal interview. Continuation in the program is dependent upon satisfactory progress in development of dramatic writing skills and mastery of critical concepts. Minimum course requirements include a major of at least 30 credits in dramatic and/or creative writing and dramatic literature courses, 12 credits in theater history and 12 elective credits in appropriate courses outside the major. The thesis may be a creative project or a research study.

Children's Drama

The sequence is planned to include substantial coursework and laboratory experience in both children's theater and creative dramatics. Students may emphasize either area but are expected to achieve proficiency in the direction of each type of activity. Normal course requirements, in addition to ThAr 500, include a major of 42 credits, with 30 in children's drama and production courses, and a minimum of 12 in theater history and literature. The thesis requirement may be met by a research study, a creative project or, with

the recommendation of the adviser, 12 credits in a sequence of approved nonthesis courses.

500 Introduction to Graduate Study (3) (fall). Professional literature and conduct of research in theater arts. 3 lec.

502 Theater Management (4)
Management in performing arts. 3 lec.

510A Advanced Rehearsal and Performance (8) Intensive studio practice in performing advanced roles.

510B Advanced Rehearsal and Performance (8) Continuation of 510A. See 510A for description.

510C Advanced Rehearsal and Performance (8) Continuation of 510A and 510B. See 510A for description.

515 Styles in Acting (4)

Acting in relation to form and content of pre-modern and nonrealistic drama.

516 Advanced Stage Speech (3)

Vocal action for classical drama and dialects. 1 lec, 4 lab.

520 Direction of Oral Interpretation (4)

Group interpretation forms; readers theater, chamber theater and choral reading. 4 lec.

525 Practicum in School Theater (1-6, max 6)

Prereq: perm. Supervised practice in projects with elementary and secondary schools.

530 Technical Direction (4)

(winter). Role and responsibilities of technical director.

531 Advanced Lighting (4)

Prereq: perm. (fall). Light as element of design.

533 Practicum in Design or Technical Production (1-12)

Prereq: perm.

534 Advanced Scene Design (4)

Prereq: perm. (fall). Scene design styles of pre-modern drama; theory and practices.

535 History of Costume (4)

(fall). Development of costume from pre-Greek era; emphasis on clothing as reflection of western cultural development. 4 lec.

536 Advanced Costume Design (4)

Prereq: 535. (winter). Advanced problems and projects in theatrical costume.

540 Advanced Children's Theater (4)

(winter). Application of principles and practices to advanced production problems. 3 lec/recit.

541 Practicum in Creative Dramatics (1-4)

Prereq: perm. Supervised practice in leading projects in creative dramatics.

545 Children's Drama and the Arts (4)

(spring). Problems and potentials of approaching creative arts for children through drama activities. 3 lec/recit.

550 Playwrights Workshop (3, max 9)

Prereq: perm. Practical workshop study and production of plays written by students.

560 Directing Premodern Drama (4)

Prereq: perm. (winter). Principles and techniques of staging premodern drama. 3 lec.

561 Styles of Directing (4)

Prereq: 560. (spring). Advanced theories and practices of directing, emphasis on nonrealistic drama. 3 lec.

563 Directorial Planning (4)

Prereq: perm. (fall).

575 Dramatic Criticism I (4)

(fall). Principles of dramatic criticism from Aristotle to modern theater. 3 lec.

576 Dramatic Criticism II (4)

Prereq: 575 or perm. (winter). Modern dramatic criticism from time of Ibsen to present. 3 lec.

610A Advanced Problems in Acting and Performance (8)

Prereq: 510A,B,C; perm.

610B Advanced Problems in Acting and Performance (8)

Prereq: 510A,B,C; perm. Continuation of 610A.

610C Advanced Problems in Acting and Performance (8)

Prereq: 510A,B,C; perm. Continuation of 610A and 610B.

630 Advanced Technical Direction (4)

Prereq: 530.

631 Advanced Lighting Techniques (4)

Prereq: 531. (winter).

634 Advanced Scene Techniques (4)

Prereq: 534.

636 Advanced Costume Techniques (4)

Prereq: 536. (spring).

695 Thesis (1-12)

Prereq: perm.

698 Individual Projects (1-12, max 12)

Prereq: perm.

699 Independent Readings (1-12, max 12)

Prereq: perm.

702 Theater Administration (4)

(spring). Organization and administration of education, community and resident theater.

705 Directed Instruction (1-3, max 9)

Prereq: perm. Supervised practice in instructing.

713 Internship in Acting (1-12)

Prereq: acting major and perm.

720 Seminar in Oral Interpretation (4)

Theory, history and advanced problems of oral interpretation.

730 Advanced Technical Studies (4, max 8)

Prereq: perm.

731 Advanced Lighting Studies (4)

Prereq: 631.

733 Internship in Design or Technical Production (1-12)

Prereq: production design major.

734 Studies in Scene Design (4, max 12)

736 Studies in Costume Design (4, max 12)

Prereq: 536, perm.

740 Studies in Children's Theater (4, max 12)

Prereq: 540. Advanced problems in children's theater production, operation and management.

741 Seminar in Creative Dramatics (4, max 12)

Prereq: 541. Advanced problems in creative dramatics leadership.

742 Theoretical Bases of Children's Drama (4)

Prereq: 545. Esthetic and behavioral theories as applied to theater with and for children.

750 Seminar in Dramatic Writing (4-8, max 16)

Prereq: perm.

760 Seminar in Directing (4, max 12)

Prereq: directing major, perm.

763 Internship in Directing (1-12)

Prereq: directing major, perm.

770 Greek Theater and Drama (4)

First in series of 8 seminars covering in depth theater and drama of western world from prehistoric times to contemporary. 3 lec.

771 Roman and Medieval Theater (4)

772 Renaissance Theater and Drama (4)

773 Restoration and 18th Century Theater (4)

774 Baroque European Theater (4)
 775 19th Century European Theater (4)
 776 Contemporary Theater (4)
 777 American Theater and Drama (4)
 830 Seminar in Production Design (3)
 Prereq: perm.
 870 Seminar in Theater History (4)
 (May be repeated as topic changes.)
 875 Seminar in Dramatic Criticism (4)
 (May be repeated as topic changes.)

ZOOLOGY

Zoology

Microbiology

For admission to graduate study in zoology or microbiology a student must have an accredited baccalaureate degree and have completed at least 27 quarter hours in biological sciences including at least three of the following areas: anatomy, ecology, embryology, evolution, genetics and physiology. In addition, training in mathematics, physics and organic chemistry is required. Deficiencies in these areas must be removed sometime during the course of graduate study. The Graduate Record Examination is required of all applicants.

All master's and doctoral candidates are expected to complete 45 and 135 quarter hours respectively in zoology or microbiology and approved related areas. Research may be done in one of the following areas: cell biology, physiological and behavioral sciences, ecology, microbiology, entomology and vertebrate and invertebrate zoology.

A nonthesis master's program is open to secondary and junior college teachers.

Zoology

504 Comparative Vertebrate Anatomy — Mammalian (6)
 Prereq: perm. (fall). Continuation of 303. Anatomy of mammals with particular emphasis on the cat. 3 lec, 6 lab.

506 Vertebrate Embryology (6)
 Prereq: perm. (winter, spring). Development from gametogenesis to organogenesis in representative vertebrate types with laboratory emphasis given to chick and pig. 4 lec, 4 lab.

508 Histology (6)
 Prereq: perm. (winter). Cells, tissues and organ systems with regard to their morphological and physiological properties. 4 lec, 4 lab.

527 Molecular Genetics (3)
 Prereq: perm. (winter; alternate yrs). Gene action and fine structure; biochemistry of heredity; cytoplasmic inheritance. 3 lec.

528 Human Genetics (4)
 Prereq: perm. (spring). Genetics of man including normal and abnormal chromosomology; human biochemical genetics; genes in individuals, kindreds, populations and evolution. 4 lec.

530 Invertebrate Zoology (6)
 Prereq: perm. (spring, alternate yrs). Structure, function and systematic relationships of invertebrates, excluding protozoans, parasites and insects. 3 lec, 6 lab.

533 General Protozoology (6)
 Prereq: perm. (fall; alternate yrs). Structure, life histories, physiology and relationships of representatives from all major groups of protozoa. 3 lec, 5 lab.

535 General Entomology (6)
 Prereq: perm. (spring). Overview of morphology, systematics, physiology and general biology of insects. 3 lec, 6 lab.

536 Insect Morphology (6)
 Prereq: 535. (fall; alternate yrs). External and internal structure of insects. 3 lec, 6 lab.

537 Medical Entomology (4)
 Prereq: perm. (winter). Relationship of insects and related arthropods to human disease. 3 lec.

538 Topics in Insect Physiology (3)
 Prereq: perm. (fall; alternate yrs).

541 Parasitology (6)
 Prereq: perm. (spring). Etiology of human parasites, their transmission, diagnosis and prevention. 3 lec, 6 lab.

542 Helminthology (6)
 Prereq: perm. (fall; alternate yrs). Biology of parasitic worms with emphasis on physiology, classification, life histories and host response. 3 lec, 6 lab.

545 Physiology of Exercise (4)
 Prereq: perm. (fall). Fundamental concepts describing reaction of organ systems to exercise/muscle metabolism and work evaluation; special reference to physical fitness, sport conditioning and environmental adaptations to exercise. 4 lec. (Same as HPER 514.)

546 Physiology of Exercise Laboratory (2)
 Prereq: perm; required for those enrolled in 545. (fall). Laboratory experiences designed to complement 445/545. 4 lab. (Same as HPER 415/515.)

548 Cell Physiology (4)
 Prereq: organic chemistry; physics recommended. (spring). Fundamental processes involving physical and chemical reactions at cellular and molecular level. Nutrition, energy metabolism, excretion, responsiveness and growth investigated in depth. 4 lec.

549 Cell Physiology Laboratory (4)
 Prereq: 548 or with 548, perm. (spring). Laboratory experiments designed to illustrate experimental bases of principles discussed in 548. 6 hrs lab and arr.

550 Principles of Endocrinology (4)
 Prereq: 560 or 548 recommended. (fall). Endocrine control of mammalian homeostasis and metabolism. 4 lec.

551 Endocrinology Laboratory (4)
 Prereq: 550. (winter). Experimental techniques pertinent to study of endocrine glands including surgical ablation of 1 or more glands using rats. 6 lab.

560 Animal Physiology (5)
 Prereq: perm. (fall). General and comparative physiology emphasizing principal functions underlying life processes. Emphases on physiological adaptations to environment and neurophysiological systems. 5 lec.

561 Animal Physiology Lab (4)
 Prereq: 560 or with 560, perm. (fall). Laboratory exercises designed to illustrate experimental basis of principles covered in 560. 6 and arr lab.

563 Cell Chemistry (4)
 Prereq: perm. (fall, spring). Chemistry of carbohydrates, lipids, proteins and nucleic acids. Principles of enzyme activity and kinetics; metabolic pathways. 4 lec.

573 Ethology (6)

Prereq: perm. (fall). Analysis of exogenous and endogenous factors which regulate behavior of invertebrates and vertebrates. 4 lec, 4 lab.

575 Animal Ecology (3)

Prereq: perm. (spring). Relation of animals to their habitat, to each other and to man. General principles of terrestrial and aquatic communities, ecosystems and man's involvement. 3 lec.

576 Ecology Laboratory (2)

Prereq: 575 or with 575. (spring). Field course for animal ecology, consisting of visits to and studies of various local terrestrial and aquatic communities. 4 lab.

577 Population Biology (4)

Prereq: perm. (fall). Quantitative aspects of genetics and ecology of both plant and animal populations, with emphasis on a conceptual framework and its application to natural population. 4 lec.

578 Population Biology Laboratory (3)

Prereq: 577 or with 577, perm. (fall). Laboratory exercises designed to illustrate experimental bases of principles discussed in 577. 4 and arr lab.

579 Evolution (4)

Prereq: perm. (fall, winter). Evidence for and current ideas and research on mechanisms of organic evolution. 4 lec.

580 Biological Research Methods (2-4)

Prereq: perm.

580.1 Microscopy and Photomicrography (2)**580.2 Techniques in Electron Microscopy (3)**

Prereq: perm. (fall). Principles and methods for preparation of biological specimens for ultrastructural analysis and research, and some associated techniques. Instruction in microscopic operation and maintenance and darkroom techniques.

646 Comparative Physiology (6)

Prereq: perm. (winter). Comparative study of homeostatic mechanisms and systems in organisms and their relation to fundamental chemical and physical events in cells. Includes ionic and water balance; cardio-vascular regulation and function; role of reflex arcs and autonomic nervous system controls; respiratory mechanisms; evolution of various systems. 3 lec, 6 lab.

682 Advanced Topics (1-3)

Prereq: perm. (upon demand). Specialized topics not otherwise available to advanced students.

685 Research in Zoology (1-15)

Prereq: perm.

690 Seminar in Zoology (1)

Prereq: perm. (fall). Faculty presentation of current research activities; discussions of current literature. (Required of new graduate students.)

695 Master's Thesis (1-15)

Prereq: perm.

709 Biological Ultrastructure (3)

Prereq: perm. (winter). Cells, organelles and some organ systems, assembling data on their ultrastructure, chemistry and function. 3 lec.

756 Comparative Neurophysiology (5)

Prereq: 548 or 560, perm. (winter, alternate yrs from 780). Principles of comparative, integrative neurophysiology, lectures and seminar. 4 lec, 2 sem.

779 Experimental Animal Ecology (6)

Prereq: 477 or 577 and perm. (spring). Research methods in ecology with emphasis on collecting, quantifying and portraying data obtained during course; includes population density, dispersion, dynamics and interactions and community productivity, metabolism and succession. 2 lec, 6 lab and field work and arr.

780 Neurophysiological Techniques (6)

Prereq: perm. (winter; alternate yrs from 756). Intensive examination of electrophysiological techniques employed in neurophysiological research. Emphasis on microelectrode recording methods.

895 Doctoral Dissertation (1-15)

Prereq: perm.

Microbiology

511 General Microbiology (6)

Prereq: perm. (fall). Properties of bacteria and other protists and their importance in our environment. Laboratory training in common bacteriological methods. 3 lec, 6 lab.

512 Microbiological Techniques (4)

Prereq: 511, perm. (winter). Gives microbiology major extensive experience in use of bacteriological techniques and equipment; information retrieval. 2 lec, lab arr.

513 Pathogenic Bacteriology (6)

Prereq: 511. (winter). Microorganisms in relation to disease. Disease manifestations, diagnostic and control methods; some aspects of immunity. 3 lec, 6 lab.

515 Immunology (6)

Prereq: 511. (spring). Fundamental concepts of immunity, how produced, advantages and disadvantages; fundamental immunological phenomena. 3 lec, 6 and arr lab.

517 Advanced General Microbiology (6)

Prereq: 511. (not offered 1973-74). Selected topics: cell structure, staining, sporulation, growth, variation, biochemical tests. Extensive assigned readings in current literature. 3 lec, 6 lab.

519 Bacterial Physiology (6)

Prereq: 511. (spring). Nutrition, function and metabolism of bacteria; pertinent laboratory work illustrating fundamental principles and various experimental techniques. 3 lec, 5 lab.

527 Molecular Genetics (3)

Prereq: perm. (winter; alternate yrs.) Gene action and fine structure; biochemistry of heredity; cytoplasmic inheritance. 3 lec.

618 Epidemiology (4)

Prereq: 511, 537 or 541 and perm. (winter). Mode of spread, cure and prevention of communicable diseases in humans. 3 lec, 2 lab.

682 Advanced Topics (1-3)

Prereq: perm. (upon demand). Specialized topics not otherwise available to advanced students.

685 Research in Microbiology (1-15)

Prereq: perm.

695 Master's Thesis (1-15)

Prereq: perm.

714 Virology (4)

Prereq: perm. (winter; alternate yrs.) Viral and rickettsial agents pathogenic to man and animals. Isolation and identification methods, physico-chemical and biological properties. Pathology, cure and prevention of selected prototype diseases. 2 lec, 4 lab.

716 Immunochemistry (6)

Prereq: perm. (fall). Types of antigens and antibodies; significance in disease and research. Principles and techniques of isolation, purification and assay. Special immunological phenomena. 3 lec, 6 and arr lab.

720 Microbial Genetics (6)

Prereq: 511, biochemistry recommended; perm. (winter). Genetics of bacteria, viruses and selected protists. Techniques and concepts with emphasis on transfer and biochemical expression of genetic material. 3 lec, 6 lab.

895 Doctoral Dissertation (1-15)

Prereq: perm.

Departmental Faculty

This listing of Ohio University's faculty was compiled and verified by the Office of the Vice President and Dean of Faculties as of May, 1973. The regional campus faculties are listed separately after the main campus faculty.

Accounting and Quantitative Methods

Prof: Warren H. Reininga, William M. Voss (chairman)
Assoc. Prof: Thomas W. Bolland, Frederick G. Davis, Paul R. Dunlap, Arthur Kraft, C. B. Stephenson
Asst. Prof: James S. Cox, Abdul W. Hammond, Ellsworth J. Holden, Donald V. Stuchell
Lect: William D. Kelton (part-time)
Instr: Corrine M. Brown, Joseph S. Reeves, Jr.

Administrative Sciences

Prof: Richard W. French, Victor A. Grieco, Charles L. Hubbard, S. Benjamin Prasad (chairman), Robert S. Raymond, Scott D. Walton
Assoc. Prof: John H. Hand, Azmi D. Mikhail, Harlan E. Patterson, Dwight A. Pugh, David Richmond
Asst. Prof: Howard B. Cox, Peter R. Kensicki, Kahandas N. Nandola
Lect: Paul Anton

Aerospace Studies

Prof: G.O. Nicholson (chairman; visiting)
Instr: Michael A. King (visiting)
Lect: Charles W. Brown (visiting)

Architecture

Prof: Forrest Wilson (director)
Assoc. Prof: George Fuller, John McDermott
Asst. Prof: Norman Crowe, Richard Dybiec, Aziz Farag, William Hoyt, Laszlo Koe-Krompecher, Charles Leach, Paul Laseau
Instr: Francis Ching, Stephen Sachs, James Tice

Art

Prof: John Baldwin, David Hostetler, William Kortlander, Henry Lin, Dana Loomis, Clifford McCarthy, Donald Roberts
Assoc. Prof: Jose Barrio-Garay (director), Robert Borchard, Aethelred Eldridge, Phillip Harrington, Abner Jonas, David Klahn, George Kokis, Ronald Kroutel, Gary Pettigrew
Asst. Prof: Arnold Gassan, Michael Harper, Linda Leach, Edward Mayer, Karen Nulf, Judith Perani, Peter Ramsey (L), Daniel Williams, James Winebrenner
Instr: Dennis Adams, Mary Manusos, Judith Millis, Larry Simpson, Theodore Weller
Lect: Walter Allen

Aviation

Assoc. Prof: Francis Fuller (chairman)
Asst. Prof: John Schwendeman
Instr: Lance Dale
Lect: Joan Mace

Black Studies

Dean: James F. Barnes
Asst. Prof: Lindiwe M. Pettiford
Instr: Adriane M. Livingstone, Antar S.K. Mberi, Rodney D. Sampson, James G. Steele
Part-time: Michael W. Guilford

Botany

Dist. Prof: Norman S. Cohn
Prof: Charles E. Miller (chairman), Thomas N. Taylor, Warren A. Wistendahl
Assoc. Prof: Arthur H. Bickle, James C. Cavender, J. Herbert Graffius, Mordecai J. Jaffe, Laurence A. Larson, Irwin A. Ungar
Asst. Prof: James P. Braselton, Robert M. Lloyd, John P. Mitchell, Ivan K. Smith

Chemistry

Dist. Prof: William D. Huntsman
Prof: Abraham Clearfield, Jesse H. Day, Lawrence P. Eblin, Robert K. Ingham, John G. Jewett, Robert J. Kline (chairman), Robert F. Sympson, James Y. Tong
Assoc. Prof: David G. Hendricker, Clifford C. Houk, Howard W. Latz, Paul D. Sullivan, Gene A. Westenbarger, Robert R. Winkler
Asst. Prof: Peter R. Griffiths, Gary V. Pfeiffer, Thomas E. Wagner, Robert Cory, Eugene Gregory

Classical Languages

Prof: Paul R. Murphy
Asst. Prof: Harry A. Hultgren (chairman), Alexander M. Radko
Instr: Samuel S. Foulk

Comparative Arts

Prof: James Conover, Herbert White, Robert Wortman (chairman)
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